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.....No. 384

SECOND ANNUAL REPORT

OF THE

BOARD OF RAILROAD COMMISSIONERS.

JANUARY, 1871.

BOSTON:

WRIGHT & POTTER, STATE PRINTERS, No. 79 MILK STREET,
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Commonwealth of Massachusetts.

The Railroad Commissioners respectfully submit their Second Annual Report.

The subjects which the commissioners feel called upon to discuss in this, their second annual report, naturally divide themselves under two heads :—

1st. Those matters peculiar to this Commonwealth, or which by special order of the last legislature were referred to this board with instructions to report thereon, being rather of a local or temporary description ; and

2d. The general questions of railroad development, which are now subjects of inquiry here, no less than elsewhere, and which arise out of the relations existing between the community and its railroad corporations.

The commissioners propose therefore to divide their report into two parts, which will respectively treat of these divisions of their subject.

PART I.

Fifty-five Acts and two Resolves of special nature relating to railroads were passed by the last legislature. Among these were nine Acts of incorporation of railroad companies, and four of street railways ; two lapsed railroad charters were revived, and one street railway charter. No information of any action had under the street railway charters has reached the commissioners. In Appendix B of this report will be found a condensed statement of the organizations effected and the work of construction done during the year. Seven of the companies

chartered by the last legislature organized, and two of these have completed their roads. The whole amount of additional completed road reported this year over that reported last is 37.10 miles. The only event of any significance in the way of construction within this state during the last year has been the completion of Mansfield and Framingham road, which was opened in June last, forming the last link in the chain of roads connecting New Bedford with Fitchburg and the northern railroad system. Upon the nine roads chartered in 1870, but five miles have been constructed, in so far as the commissioners are advised.

INCORPORATION BY SPECIAL CHARTER.

In their first report the commissioners alluded at some length to the evils incident to the practice of authorizing all railroad construction under special charters, which has ever prevailed in this Commonwealth. They desire now to call attention to the criticisms they then made upon this subject. (First Annual Report, pp. 44-6.) The experience of the last legislature and the observations of another year, have more than confirmed them in the opinions then expressed. Every year that the existing system continues it greatly aggravates the labors of the session and needlessly adds to the confusion of a mass of legislation, the present condition of which is appreciated by very few. There might be a degree of compensation for these evils if the practice served to perpetuate any distinctive policy. This, however, is not the case. There are no recognized principles upon which charters for the construction of new railroads are now granted or withheld by the Massachusetts legislature. A system of special legislation is usually justified upon the assumption that certain public duties can best be performed by monopolists, who are to be protected and regulated in the enjoyment of their monopoly by law. The existing railroads of Massachusetts are not at present regulated by law, neither does the legislature protect them against injudicious competition. As instances in point, in 1868 a charter was granted authorizing the construction of a road parallel to a part of the Boston & Maine line, and not averaging more than a mile distance from it; in 1869 three charters were granted for roads from Taunton to Providence; in 1870 the Lexington branch was transferred from the Fitchburg to the Boston & Lowell road. The present

system might, therefore, more correctly be described as one of free construction under special laws. A negative decision as to any scheme has consequently ceased to be regarded as final. The same questions are yearly fought over in committee, and on the floors of the two houses with a uniform final result,—any charter that is asked for is finally granted. The process necessary to procure success may be described as a mixed one,—consisting of persistency, combined with log-rolling. It, however, rarely or never fails in the end, and the exceptions to the rule, if any occur, are where some opposing and existing corporation steps in and itself furnishes the desired accommodation, or a part of it, in order to prevent the organization of a competing line. These questions between proposed routes and between contending companies, as in the case of the Draper and Carpenter routes to Lowell, and the Lexington branch, in the session of 1870, occupy more than half of the time of committees, and are a fruitful source of delay in legislative business. In the opinion of the commissioners the evil is a wholly unnecessary one. Massachusetts is one of the few states in which these questions are not now regulated by general laws, and the commissioners have in vain sought elsewhere for indications of those evils, either of excessive competition or of unwillingness to construct under general laws, which special legislation is here supposed to obviate. So far as excessive competition is concerned, as causing injury to existing corporations, experience abundantly proves that under a general law, railroad corporations can protect themselves quite as efficiently as is desirable, without recourse to the lobbies of the legislature ;—as regards the supposed necessity of encouraging railroad construction by holding in check the undue formation of competing lines, the recent experience of Massachusetts distinctly indicates that the danger lies not in an excessive construction, but in the inability to construct what the community really needs.

In their first annual report (Appendix G) the commissioners presented a draft of a general law authorizing the construction of certain branch railroads. This bill failed to recommend itself to the judgment of the committee on railways, and was never, except in parts, reported for legislative consideration. On more mature reflection the commissioners are of opinion that

this bill did not meet the requirements of the case. It was much too limited in its operation,—too narrow in its scope. The commissioners have therefore prepared the draft of a new bill, embodying they believe all the provisions of a general law in relation to the organization of the companies and construction of railroads, which they would now recommend to the consideration of the present legislature. It will be found in Appendix C of the present report. Should it be enacted into a law, with such improvements as may be embodied into it by the committee on railways, and after undergoing the test of a thorough legislative discussion, the commissioners entertain a confident hope that it will remove one of the greatest sources of abuse and delay in the legislative business which now exists, and will put a stop to those discreditable, but constantly recurring struggles between corporations in the lobbies and upon the floors of the two houses, which have of late constituted regular features of every session.

MUNICIPAL AID TO RAILROAD CONSTRUCTION.

Closely connected with railroad construction is the question of municipal aid in encouragement of it. It seems now to be generally conceded that some provision for the construction of a certain amount of railroad facilities is, in this country at any rate, a matter of public charge. The especial disposition made of the amount thus authorized to be appropriated is usually left to the discretion of the particular localities interested. A general law authorizing railroad construction should therefore be supplemented by some provision, generally applicable, regulating the public contribution to it. Until within the last year, this, also, has in this Commonwealth been provided for solely by special legislation, which practice has left many Acts upon the statute book based upon various and discordant principles. This much-vexed question was put to rest in the last legislature by the passage of a general law which authorized, under certain limitations and restrictions, any towns of the Commonwealth containing less than 12,000 inhabitants to subscribe in aid of railroad construction within their limits. The constitutionality of this class of Acts has, because of an adverse decision of the supreme court of Michigan, been a subject of much discussion during the last year. The question has not as yet

been brought before the courts of Massachusetts. The legislation of the last year has, however, been generally and favorably commented upon in other sections of the country, and recommended as a reasonable and satisfactory basis upon which to adjust a practice out of which very grave abuses and legal complications have elsewhere arisen. So far as Massachusetts is concerned the law in question authorizes in the whole state an appropriation of no less than \$22,000,000 towards railroad construction. The accompanying table shows the amount thus authorized to be voted in each county of the state, as well as the proportion of the whole amount already actually applied.

TABLE No. 1.

COUNTIES.	Valuation of 1869.	Five Per Cent. of Valuation.*	Amount Voted by Towns to Railroads.	Balance avail- able under the Law.
Barnstable, . .	\$14,523,950 00	\$726,197 00	\$115,800 00	\$610,397 00
Berkshire, . .	36,508,558 00	1,825,427 00	233,000 00	1,592,427 00
Bristol, . . .	18,026,633 00	901,331 00	—	901,331 00
Dukes,	2,287,973 00	114,398 00	—	114,398 00
Essex,	41,222,496 00	2,061,124 00	245,000 00	1,816,124 00
Franklin, . . .	14,433,376 00	721,668 00	90,900 00	630,768 00
Hampden, . . .	25,507,267 00	1,275,363 00	43,800 00	1,231,563 00
Hampshire, . .	25,855,358 00	1,292,767 00	547,400 00	745,367 00
Middlesex, . .	88,778,704 00	4,438,935 00	211,700 00	4,227,235 00
Nantucket, . .	2,027,359 00	101,367 00	—	101,367 00
Norfolk, . . .	72,758,584 00	3,637,929 00	—	3,637,929 00
Plymouth, . .	30,092,680 00	1,504,634 00	225,000 00	1,279,634 00
Worcester, . .	68,300,303 00	3,415,015 00	638,400 00	2,776,615 00
Totals, . . .	\$440,323,241 00	\$22,016,155 00	\$2,351,000 00	\$19,665,155 00

By chapter 64 of the Acts of 1870 it was made the duty of any city or town clerk to transmit to this board a certified copy of any vote under which a subscription of public means was made to any railroad corporation. A tabulated statement of the action had in the several cities and towns, both under the general law of 1870 and all previous private Acts, as well as the amounts hitherto subscribed in aid of railroad construction will be found in Appendix D of this Report. Hitherto

* In computing this column fractional parts of a dollar are disregarded.

the rule requiring a two-thirds affirmative vote in such cases has not affected any result; in certain cases less than a majority vote has been cast in favor of an appropriation, but in no case as yet, (September 30th,) in which action was had under the general law, has the affirmative vote been more than a majority but less than two-thirds.

TERMINAL FACILITIES ON THE NORTH SIDE OF BOSTON.

Under the provisions of § 2 of chapter 301 of the Acts of 1870, "the board of harbor commissioners and the board of railroad commissioners are hereby instructed to confer with the authorities of the city of Boston, and the officers of the several railroad corporations owning or operating railroads which enter said city at its north side, and to report to the next legislature upon the feasibility of maturing some definite and comprehensive plan for the future accommodation of said railroad corporations, both as regards the wants of navigation and terminal facilities in Boston; and also to report a draft of such plan, if any shall appear to them to be feasible." This investigation has occupied much of the time and attention of the members of this board during the past six months, and the whole subject referred to has been laboriously gone over. A separate report upon it will, however, be presented by the joint commission during the session of the legislature, and no further reference need be made to it in this place.

RAILROAD RETURNS.

In accordance with the provisions of chapter 307 of the Acts of 1870, the returns of the several railroad corporations of the state were this year made to this board instead of to the Secretary of the Commonwealth as heretofore. The date of the termination of the railroad year was also changed from the 30th of November to the 30th of September. The same Act authorized this board to "order such changes and additions in the forms of said returns and reports as they shall deem expedient." The commissioners, feeling that the forms of return hitherto used did not meet existing requirements, and that the conclusions to be deduced from them were very unreliable, have given considerable attention to this subject. As a result of a careful comparison of tables in use here and elsewhere, a

new form has been prepared and copies of it transmitted to the several corporations of the Commonwealth before September 30th, so that the provisions of the law, requiring one year's notice, are complied with, and the change can be effected for the next railroad year. A copy of the new form will be found in Appendix E.

In preparing these returns the commissioners have had two ends in view: (1) the obtaining of greater particularity of return; and (2) a more uniform system of accounts. It is now almost impossible, with the means at hand, to effect any minute analysis of the business of our railroads through any considerable period of time. The commissioners have labored under the greatest disadvantages, arising from this cause, which have thrown grave doubts over many conclusions they have arrived at. The value of their investigations in the future may be considered to depend on the success they meet with in procuring information and statistics, which are at once minute and reliable, in a greater degree than upon any other one condition. Of course every amended form of return will impose a certain amount of additional expense, and exact considerable additional labor from the employés of the corporations. This is inevitable. At the same time the people of Massachusetts pay twenty-five millions a year to these corporations, and if by paying a few thousand more they can obtain such information as they absolutely need to enable them to deal intelligently with them, such additional outlay would be far from wasted. In such a case the labor and cost involved would constitute the least consideration.

The circular which accompanied the new forms, where they were transmitted to the corporations, is also printed. (Appendix E.) The commissioners take this occasion to say again that they are anxiously waiting for suggestions on this subject, or objections to the form proposed. Unless these, however, are speedily forthcoming, the form as printed will take effect for the next year.

TOOLS ON RAILROAD TRAINS.

The commissioners also desire to call attention to certain of the tools specified to be carried on every train of cars, under the provisions of § 1 of chapter 372 of the Acts of 1870. The

enforcement of this Act was especially referred to this board. In putting it in practical operation, the commissioners have been forced to the conclusion that in certain respects the Act was passed unadvisedly, and imposes an unnecessarily bulky load upon locomotives and baggage cars. "Traversing jackscrews" are very useful tools, but they are both expensive and intricate of management. Were they at hand on the occurring of any ordinary accident, there would, in all probability, be no one present competent to use them. "Ropes and blocks suitable for hauling engines" are open to a somewhat different criticism. These are very bulky and cumbersome, and as they could not be used without the assistance of a second engine, would, in fact, be only in the way, in any ordinary case of accident. Ropes and blocks, more than sufficient to haul cars, are, as well as traversing-jacks, very appropriate and necessary articles in the equipment of wrecking cars, but out of place as train-tools. The commissioners would therefore recommend an amendment to the Act referred to, in order that they may justifiably exact a strict compliance with it. A draft of the proposed amendment will be found in Appendix F of this report.

INGRESS TO AND EGRESS FROM RAILROAD CARS IN MOTION.

By chapter 78 of the Resolves of 1870, the commissioners were directed to consider and report to the present legislature, "whether any and what legislation is necessary concerning the ingress and egress of passengers into and from railroad cars, while the same are in motion." With a view to forming some opinion of the proportion borne by accidents arising from this cause to all accidents to passengers, the commissioners examined the returns of the three States of New York, Ohio and Massachusetts, for the year 1870. They were somewhat surprised to find that while in Ohio 5 out of 16 accidents reported were referred to this cause, and in New York 34 out of 102, the number in Massachusetts rose to 13 out of 14. In these three States 52 accidents out of 132 reported arose from this cause.

Actuated by a strong desire to suggest some remedy for this source of frequent accident, the commissioners have given the best consideration in their power to the possible legis-

lative provisions calculated to meet the case. They regret to say that, without undertaking at great expense and public inconvenience to wholly revolutionize the methods of carrying passengers by rail within this state, they are unable to suggest any effective remedy. It appears to them to be useless to enact laws which are opposed to the habits, and, indeed, to what may be called the genius of the people for whose protection they are enacted. The whole system of American institutions is based upon the principle that, with due warning given, people can take quite as good care of themselves as government and corporate officials can take of them. In many foreign countries a different principle obtains. The rules of railroad corporations seem there based upon the supposition that all passengers are bent upon self-destruction, and will succeed in their designs upon themselves the moment they cease to be watched and directed. Accordingly, from the moment they reach a station to that on which they leave it, they become almost irresponsible agents. They are fenced in until a train arrives; they are then made to pass through a particular gate to get into it, and, when in, they are locked up until a destination is reached, when they are released, and again made to pass through a gate, and thus to leave the premises of the company. The cars are differently arranged from those in use in America, and on the compartment plan; no passenger can possibly pass from one coach to another while the train is in motion, and the freedom of communication is practically cut off. Even under these circumstances the commissioners are not satisfied that greater danger to human life attends railroad travelling in Massachusetts than in Europe. On this point they have not been able to obtain the latest comparative statistics, but in 1863 it was stated by high authority * that the number of passengers "killed and injured from causes beyond their own control, would appear to have been on British railways 1 in 334,000; on Belgian railways 1 in 1,600,000; on Prussian railways 1 in 3,000,000; on French railways 1 in 4,000,000." In Massachusetts in 1869 the casualties of all descriptions among passengers were 1 in a little more than 2,000,000. These figures, so far as they go, would not

* Institution of Civil Engineers—Minutes of Proceedings. Vol. 21, p. 363.

encourage a disposition to change. Meanwhile, the authority just quoted estimates the dangers of the same description in stage-coach travelling as 1 in 28,000. All of which, if correct, would tend to show that the present system of railroad travelling in Massachusetts is nearly a hundred-fold safer than the old stage-coach system, and will compare not unfavorably with the systems in use in Europe.

Certain things in relation to the safety of the travelling public are clearly matters for police regulation ;—such are the precautions as regards brakes, bridges, switches, track-crossings, &c.,—over these passengers cannot exercise any judgment, and must rely for protection upon the laws which establish the responsibility, whether civil or criminal, of the corporations. The matter under discussion does not fall within any of these heads. The only possible remedy would be to enact by law that cars in motion should be locked up and only unlocked after a train had come to a full stop ; and even this, though it would prevent egress, would afford no remedy against the most fruitful source of accident, the attempt of persons to get upon cars when in motion. The commissioners must, therefore, confess their inability to propose any satisfactory legislation in the premises. At the same time they would call attention to one improvement in car building which affords a certain degree of the desired protection, but the adoption of which has seemed to encounter some unusual objection among the railroad managers of Massachusetts. The improvement known as the “ Miller platform ” was favorably adverted to in the first report of this board (pp. 90–1), and it effectually precludes all danger of passengers falling between cars while passing from one to another. It has been very extensively adopted in the Western and Middle States, though hardly at all in New England. Not only does it greatly contribute to the comfort of all travelling, by effectually putting a stop to unsteady motion, and especially to jerking, both in stopping and starting trains, but it is in two respects a great safeguard against the worst accidents to which railroad travel is subjected. It prevents what is called “ telescoping,” and, being a self-coupler, disconnects in case one car in rolling down an embankment threatens to draw the rest of a train after it. This is a patent invention, and the commissioners do not see how its use can be made compulsory ; indeed, it is not

impossible that practical difficulties may exist in its use upon roads with very sharp curvatures. The commissioners must, therefore, content themselves with again, in this connection, calling attention to it, and repeating as earnestly as they can the recommendation contained in their previous report.

SAFETY SWITCHES.

In regard to one other subject referred to them for report in the same Resolve (chap. 78) the commissioners desire to make a decided recommendation which they have put in the form of a statute provision, the enactment of which they would strongly urge. There is hardly any one thing so productive of accident as the displacement of switches. The ingress and egress from cars only involves risk to individuals, but the difficulty referred to endangers whole trains. It should, in the opinion of this board, immediately be made compulsory upon all railroad corporations to hereafter put into their main tracks none but the Tyler or such other safety switch, as shall previously receive the written approval of this board. It may be that improvements under another name will be invented, and it would therefore be injudicious to particularize any particular switch without leaving somewhere a discretion as regards it. Neither do the commissioners desire to recommend an immediate and compulsory substitution of the safety switch for those now in use. They would, however, strongly urge that the substitution of these switches should be effected just as fast as any part of the iron of the present switches calls for renewal. A statute provision embodying this recommendation will be found in Appendix G of this report.

CODIFICATION OF LAWS.

It was provided in chapter 71 of the Resolves of 1870, that this board should "prepare a codification of the general laws relating to railroads and railroad corporations." The commissioners have performed this duty, and the result of their labors will be embodied in a document to be presented at an early stage of the session, and which will present the exact condition of the general railroad laws of the state, as they exist at the time of the meeting of the present legislature. Some marginal notes and recommendations have been appended by the commissioners, but in no case incorporated into the text.

The commissioners would recommend that at the close of the present session, and after all the modifications of the year have been matured, the general laws as they then stand shall be embodied into one Act and all previous legislation repealed.

ANALYSIS AND INDEX OF SPECIAL RAILROAD LAWS.

The same Resolve also provided that this board should prepare "analyses, indexes, and tables of reference to the charters of the railroad corporations of the Commonwealth, and to all special laws regulating said corporations. * * * In the preparation of said document they may employ a competent assistant." Acting under the authority herein conferred, the commissioners were fortunate enough to secure as an assistant in this duty the Hon. Ellis W. Morton, whose past experience as a member of the committee on railways, and whose familiarity with the confused and shapeless mass of legislation referred to, peculiarly qualified him to undertake the proposed task.

The commissioners, up to the present time, have been otherwise too much engrossed to render Mr. Morton any assistance, but he has zealously applied himself to the work in hand. Under date of December 10, 1870, he reported to this board as follows:—

"Charters of railroad corporations, and Acts directly and indirectly relating to or affecting them, form a large portion of our special laws. Such is the interdependency of these Acts, that to ascertain with entire accuracy all the provisions of law which define the privileges and duties of a single one of the older corporations, the investigator can hardly do less than examine the Acts concerning every corporation, as well those previously as subsequently established.

"To obviate the necessity of this somewhat blind and indefinite task, was evidently the intention of the legislature, and to do it effectually, it has seemed to me that the work should be done on the plan of a digest.

"I have undertaken to make a thorough digest of every Act, in chronological order, relating to each corporation, accompanied with the most complete references possible; so that the names of corporations being arranged alphabetically, there will be found under a single title a full analysis of all Acts relating specifically thereto, and, by references, all Acts relating thereto under other titles. I

think references to judicial decisions should also be embraced in the plan.

"My design is to present a volume, covering the entire ground contemplated in the Resolve (1870, chapter 71), that shall contain in itself the vital parts of every Act, with the most convenient reference to the Act.

"A volume of the kind must be of considerable service, and any abridgment of it must lessen its usefulness. Its preparation will involve time and care, and at present, I cannot fix a period for its completion. It shall be done with such dispatch as shall be consistent with faithfulness.

"The use of the word 'document' in the Resolve has caused me to hesitate somewhat in attempting to produce something of a character not generally included within the limits of a *document*, and requiring, it may be, more labor and more printing than the legislature anticipated; but I have been guided by a knowledge of existing wants, and the general terms of the Resolve."

The general plan of the work thus stated by Mr. Morton has been approved by this board. The attention of the legislature and of the committee on railways is now particularly called to the subject, as this very important work has not yet progressed so far that any desired alteration or simplification of the plan could not easily be effected.

FREIGHTS, FARES AND CHARGES.

The only other subjects specially referred to the consideration of this board, were those contained in chapter 54 of the Resolves. It was there provided that this board should "inquire into the subjects of tolls, freights, fares and charges exacted on the several railroads of this Commonwealth, and also a plan and tariff to prevent unjust discriminations in the levying of freights and travel tolls from way stations, and between way stations, and also to examine whether the interests of the public will be promoted by compelling the railroads to perform 'express business' for the territory contiguous to their lines," &c. The first and more important part of this Resolve,—that relating to freights, fares and charges,—must necessarily form the principal subject of discussion in the second part of this report. Two other matters referred to can, however, best be disposed of in this connection.

DISCRIMINATIONS AGAINST LOCAL STATIONS.

Under the very severe competition between the great trunk routes, consisting of many connecting and combined roads, very few, if any, of which are within the jurisdiction of this Commonwealth, lower rates have ruled for all through freights to and from competing points during a portion of the last year than were ever before known. Cases have come within the knowledge of the commissioners, in which shipments have been made at rates far below the lowest possible cost of transportation. These rates are not necessarily made by the individual corporations, but by the agents of the associated lines at points all over the continent. The smaller local corporations of this and other states are generally desirous of being members of these associations, but the low rates contracted for bear upon them with peculiar hardship. Unlike the great trunk lines,—the Boston & Albany or the New York Central,—they cannot make up by the mass of the movement and the length of the haul for the lowness of the rate. They are called on to move comparatively small quantities, a short distance, at very low rates, and to incur in so doing the cost of inevitable detentions at points of delivery. They are thus not infrequently compelled to transport at a loss, or to cease to belong to the combinations. The rules of the associated lines, over which it must be remembered Massachusetts can exercise no legislative control, consider each road as one unit,—that is, goods are only billed over such roads to certain specified points of intersection or to their terminal points. Properly, therefore, as regards these through rates, or what is known as the *pro rata* system, the whole of any given road becomes one point, so far as charges are concerned, and the road receives as its share of the freight money an amount proportioned to the length of its entire line as compared with the whole distance of the united roads traversed, and this regardless of the fact that it may leave the goods at a local point far short of the terminal point to which they were billed. Acting under these contracts, not a few roads have lost money. Certain of them, with what the commissioners cannot but consider a very illiberal and short-sighted policy, have endeavored to recoup their losses on the shipments to their terminal points by refusing to deliver *pro rated* articles at local points on their roads except on payment of the entire

through contract price to the technical point of delivery, it may be a hundred miles beyond, and a large local charge of, perhaps, \$20 per car in addition thereto. In support of this exaction they have not only used the argument that they must get a living out of some one, and therefore, if they lose on business to a point where they meet competition, they must double their rates to all points where they are free from it,—not only do they openly confess to this curious practical result of the principles of competition when relied on as a safeguard against railroad exactions, but they go further and defend it upon the ground that even thus, though at a sore disadvantage as compared with competing points, the local points are still supplied more cheaply than they would be at purely local rates. The commissioners do not care to argue this question in the light of sound policy as regards the corporations themselves. The only reliable business the railroads now have is their local business. It is their evident interest to foster and build this up by every means in their power. Corporations which cannot see this,—which by discriminating charges crush enterprise and industry out of these isolated towns, and force them to move to those points where the railroads meet only competition,—a corporation which at this late day systematically pursues such a course as this, is probably beyond the reach of argument. One thing, however, is very clear. Massachusetts is now made up of small industrial centres; these cannot by any possibility enjoy any great degree of railroad competition; that they should not be crushed out of existence and all population forced to concentrate at some half-dozen competing and railroad centres, is a matter of the greatest moment to the Commonwealth. Local points must therefore be protected from exactions of the nature of that described. If they cannot be protected in one way they must in another. The real difficulty lies in an unregulated railroad competition, and this is far beyond the reach of a Massachusetts legislature to correct. The subject is, therefore, a most delicate one to deal with, for ill-considered legislation, while it could not affect the *pro rata* contracts of the combined roads, might force Massachusetts corporations to withdraw from them; any such result would be well-nigh ruinous to the industry of the state. The commissioners desire therefore in this matter to move very cautiously, applying simply external remedies, and thus tentatively

ascertaining how some measure of a radical nature may possibly be at last devised. At present they are not prepared to do more than to propose a law which shall compel all corporations to treat their entire routes without discrimination as regards *pro rated* business ; that is, charging for it, in the same way in which the company is remunerated, as one point. Massachusetts cannot compel a combination of roads, only a very inconsiderable portion of which is within her own limits, to alter its form of contract and to bill at separate *pro rata* prices to all local points. It can, however, stipulate that local or isolated points shall be no worse off than terminal or competing points ; that goods which pay the full *pro rata* price to the terminal point on a road shall be delivered at no greater price at any local point on the same road. The commissioners do not now see how this measure can result in injury to any legitimate interest. A similar regulation already obtains upon the Pennsylvania Railroad. "The rule that has governed this company, is not to charge to any intermediate point, a greater rate than is required to one at a longer distance. Under this rule, which we think entirely defensible, the average charges for the through and local business per ton per mile passing over your line, are nearly equal."* Corporations which cannot comply with this very reasonable rule had best, perhaps, as many have already done, retire from the *pro rata* combinations and content themselves with charging specific rates to all points on their lines, both local and terminal. A more elaborate investigation by the committee on railways may develop practical difficulties in the way of an application of this law to existing conditions in Massachusetts, but they fail to suggest themselves to the commissioners. A draft of the proposed law will be found in Appendix H of this report.

THE TIME FREIGHT AND EXPRESS BUSINESS.

Under the Resolve last referred to (1870, chapter 54), the commissioners were also directed "to examine whether the interests of the public will be promoted by compelling the railroads to perform 'express business' for the territory contiguous to their lines, and report thereon to the next general court, together with such plan as they may deem expedient." This is

* Twenty-Third Annual Report, Penn. R. R. Co., Feb. 15, 1870, p. 19.

a subject which the commissioners have very much at heart. In their opinion a searching reform in the whole business of "parcels delivery" is very essential to the increasing development of Massachusetts, and in this connection they desire to call attention to the remarks (pp. 66-75) in their first annual report. When it is remembered that of the 3,100 licensed express carriers and agents in the United States which paid taxes under the internal revenue laws in 1869, 500, or nearly one-sixth of the whole, belonged to Massachusetts, with hardly one-thirtieth of the whole population, some estimate may be formed of the important part this machinery plays in the industry of the Commonwealth. The commissioners greatly regret to say that nothing has resulted from the voluntary action of the railroad corporations in the direction heretofore indicated by them. Further measures, and of a more compulsory nature, may, therefore, now be deemed advisable, but this subject the commissioners do not propose to discuss here. Its great importance, and the length to which this report must necessarily extend, make it, in their opinion, desirable that it should be made the subject of a future and supplementary report to the present legislature, rather than be here buried under a mass of other and miscellaneous matter. In preparing such a report the commissioners desire to enter more minutely than would here be expedient, into the systems and tariffs now in use in foreign countries, especially in some of the European continental nations. The practical value of the suggestions they have to make in this respect will depend in a very large degree on the favor with which the legislature and the committee on railways shall receive other recommendations contained in the present report.

COMPLAINTS AND PETITIONS.

A smaller number of complaints and petitions, demanding a hearing on account of alleged grievances, have this year been presented to the board than might naturally have been expected. In regard to such cases as have come before them, with two exceptions, no further reference is here necessary, as detailed reports of them will be found in Appendix I of this report. Of the two cases referred to as requiring special notice, the first related to

THE STATION AT GROTON JUNCTION.

A numerous signed complaint, in accordance with the provisions of sections 3-4 of chapter 408 of the Acts of 1869, was brought before the board in January, 1870, in relation to the condition of the Groton Junction station. A hearing was had upon it on the thirty-first of January, 1870, and subsequently the place was visited by the commissioners, and the buildings complained of inspected. The commissioners had no difficulty in arriving at a conclusion. They found the premises old, dangerous, ill-arranged and insufficient;—in fact they constituted not only a nuisance, but a very disgraceful one. This conclusion was immediately communicated to the officials of the roads interested, and they were requested to take action accordingly. Some months were passed in maturing and discussing plans, but as little real progress seemed to be made, the following vote was passed and communicated to the corporations mentioned in it:—

“IN BOARD OF RAILROAD COMMISSIONERS, }
July 6, 1870. }

“*Voted*, That it is the opinion of this board that the Fitchburg Railroad Company and the Worcester and Nashua Railroad Company ought to build a new station for public accommodation at Groton Junction; that it should be commenced forthwith and completed within six months.”

The period named will expire on the 6th day of January, 1871, but the commissioners regret to say that the work of construction is not yet begun. They understand that the plans and details are agreed upon, but there is an unjustifiable delay in beginning work upon them. Under these circumstances the commissioners are bound by law to “report the proceedings to the legislature” (section 3, chapter 408, Acts 1869), but they are not prepared to make any recommendation as regards them. The corporations fully intend to make the desired improvements; they are merely unreasonably slow in doing it. While the power of the commissioners in the premises is now wholly exhausted, it hardly seems worth while to invoke the special intervention of the legislature.

ALLEGATIONS THROUGH BOSTON BOARD OF TRADE.

The other subject which calls for a special reference in this connection is contained in a communication of November 2nd, 1870, addressed by Hon. Lewis J. Dudley, of Northampton, to the Boston Board of Trade. This letter, as well as a confirmatory letter from the firm of C. F. Hovey & Co., of Boston, to the Secretary of the same board, covered numerous allegations of unnecessary delays and excessive charges in forwarding freights on the part of the several roads connecting Northampton and other towns in that vicinity with Boston. Copies of these communications were published in the daily papers, and were ordered by the Board of Trade to be forwarded to this commission. The various specific statements contained in them will be investigated by the board in the usual way, and will be reported upon in the proper place. As they seem, however, calculated to create a misapprehension in the public mind, the commissioners take this opportunity to say that one great cause of all the existing railroad abuses in this state is the failure of private parties to forward their complaints either to this board or to the officials of the delinquent roads. To do so calls for the sacrifice of nothing but a sheet of paper and five minutes of time, and yet parties will submit to great inconvenience, annoyance and delay, and will waste much time in vague denunciation rather than have recourse to this perfectly simple but yet effective remedy. All that the commissioners ask for are specific statements from responsible parties, and they feel perfectly safe in guaranteeing an effective remedy. So far as the corporations immediately referred to in the communication of Mr. Dudley are concerned, the commissioners feel in justice bound to say that every representation made to them by this board has been promptly attended to, and due weight has been given to every suggestion; they are, in fact, so far as this body is competent to judge, actuated by a sincere desire to remedy all abuses which come to their knowledge, and to remove all causes of complaint incident to their present system of management.

JURISDICTION OF COMMISSION.

The commissioners have uniformly given very careful consideration to all complaints and petitions, and in no case hitherto

have they as yet seen any occasion to revise the conclusions they have arrived at. Before leaving this subject, they desire to call the particular attention of the legislature and of the committee on railways to the expediency of altering and extending the nature of the jurisdiction of the board. Petitions and representations are yearly crowded in upon the legislature in relation to all sorts of matters of special legislation, touching station accommodations, freighting facilities and numerous kindred subjects which must arise out of a complicated system such as the railroads long since grew to be. To each of these the legislature has hitherto been in the practice of giving such special attention as lay in its power. For it to continue to do so, is, as the system develops, much the same as if, without general laws in relation to them, it undertook to examine into the merits of all civil disputes or criminal prosecutions, which are now disposed of by the courts. This will necessarily continue to be the case until some radical measure of reform is enacted. Upon this point the commissioners feel a certain delicacy in making any specific recommendations or in presenting the draft of a law. The necessary legislation must emanate from members of the legislature itself, and not from persons outside of it. While the experience of the commissioners upon this, as upon all other subjects, is at the service of the committees and of the legislature, they prefer here to confine themselves to a general reference to it. Others are, as regards this matter, better judges than they, both as to what is expedient and what is practicable.

ACCIDENTS.

The usual tabulated statement of accidents, resulting in personal injuries, and their causes, will be found in Appendix K of this report. It will be seen that 141 casualties have been reported to the board during the ten months included in the last railroad year, of which 101 resulted in the loss of life. Of the whole number injured, 34 were travellers, 33 employés of the companies, and 67 persons walking upon tracks or otherwise unnecessarily, if not illegally, exposing themselves to danger. Of the casualties resulting in death, 23 occurred to travellers, 24 to employés, and 54 to all others. The proportion of accidents of all descriptions to travellers to the whole number of persons reported as carried, was as 1 to 727,104.

Of the accidents to passengers, 30 out of the 34 were caused by jumping on or off the cars while in motion, or by falling from the platforms, upon which passengers are forbidden by the rules to ride; in one case a passenger left the train on the wrong side, and was struck by another train; leaving only three accidents to passengers from causes not within their own control. Of the accidents to employés, six occurred in coupling cars, and the board takes occasion again to express the hope that this source of accidents may be soon removed by the invention of some satisfactory self-acting coupler, suitable for freight cars; six were struck by bridges, not in every instance while on top of the train, but in some cases leaning out at the side. Of the whole number of accidents reported, nearly one-half have happened to persons walking upon the track or riding without right, and fifty out of these sixty-seven accidents have proved fatal. The commissioners learn that wherever the railroad corporations have endeavored to enforce the law by prosecuting people walking upon the track, this action on their part has been followed by obstructions placed upon the track in the same neighborhood. A vague general impression may, in fact, be said to prevail that the public has a natural right to walk upon railroad tracks, the law to the contrary notwithstanding, and any attempt to infringe upon this right, excites a reckless spirit of retaliation. Under such circumstances it might not be inappropriate to leave those entertaining such sentiments to try conclusions with the locomotives, were they the only sufferers. Unfortunately, however, such is not the case; and it apparently only remains for the law to try to regulate a practice which experience shows it cannot prevent. The board desires, therefore, to renew the suggestion made by it last year as to authorizing town and city authorities to provide foot-walks within the limits of a railroad location, with the consent of the corporation; provision being made that the railroad companies shall not be liable for any accidents occurring thereon.

Of the accidents reported on the street railways, all but one were to passengers, and all of these from getting on or off cars in motion, more than half at the front platform. The commissioners renew the recommendation of last year in regard to keeping the front platform closed.

The object of the legislature in directing all accidents to be

reported to this board, and an examination into them to be made by it, was undoubtedly twofold: 1st. To provide for the enforcement of any penalty prescribed, in case accidents arose from the failure of a corporation to obey the laws of the Commonwealth; and, 2d. In all cases where it should appear that the existing laws were insufficient to provide for the security of the travelling public, to make provision for supplying such deficiency. No case within the last year has come to the knowledge of the commissioners in which any accident could be traced to the criminal disregard by any corporation of precautions specified by law. Three cases, however, have presented circumstances either calling for particular notice, or where the law seems to be insufficient for the protection of the travelling public.

THE ATHOL ACCIDENT.

On the 16th of June, as the express train on the Vermont & Massachusetts Railroad was rapidly approaching the bridge over the Miller River, in the town of Athol, on coming round one of the sharp curves by which the bridge is approached on either side, the locomotive struck a hand-car in which the section-master and his assistant, under a mistake as to time, were going to another part of the road to do some work on the track. There was no space in which to stop the train, the hand-car was violently flung aside, and probably some tool fell from it in front of the locomotive by which it was thrown off the track on the bridge, diverging more and more from the rails and dragging the train after it, until it ran off the stringers, when it naturally broke through the floor timbers, and was precipitated into the bed of the river below. In this case the bridge was sound, all the usual precautions had been taken, and yet three lives were lost, and numerous personal injuries inflicted, which would represent thousands of dollars to the corporation. A simple precaution would have prevented this accident. Did the roads make it a rule to lay down upon all bridges and the approaches thereto double or guard rails inside of each rail of the track, a locomotive or car, meeting some obstruction on the rails on one side, would have its wheels on the other side held between the track and the guard rail, and would thus move only straight forward and could not diverge

in such a manner as to run off the stringers. Or, if above the stringers, good sound cross-ties were placed, not more than $1\frac{1}{2}$ feet apart from centre to centre, and extending three or four feet outside the rails to an additional stringer, with a guard timber placed midway between the rails, the engine or car on leaving the rails would be supported by the cross-ties, and would be prevented by the guard timber in the middle from diverging so far as to strike the side of the bridge. Either of these precautions would have prevented the catastrophe of June 16th. As old and used-up iron would answer every purpose of guard rails, the cost of taking this precaution would be very slight to the corporations. It would constitute a great safeguard to the travelling public, and the loss entailed by one such accident as that at Athol would probably cover the expense of laying down guard rails on every bridge of the Commonwealth.

The commissioners do not propose at this time to recommend a law making this precaution a compulsory one. There may well be many expensive deck bridges in the Commonwealth which would not admit of the change except at a heavy outlay. They wish now, however, to make a recommendation to the corporations, and to invite criticisms upon it. Should no more serious objections than they anticipate present themselves, they will at a future period draft a form of law to meet the case, and submit it for legislative consideration.

THE WORCESTER EXPLOSION.

As a freight train on the Boston & Albany Railroad was slowly passing through the city of Worcester, at noon on the 23d of June last, a case of dynamite, one of the most destructive of known explosives, which was being transported in one of the cars, suddenly blew up, destroying track, cars, property and buildings throughout the immediate neighborhood, instantly killing one man who was walking on the track, and seriously injuring many of those living in adjacent houses. That the loss both of life and of property was not greater is almost inexplicable. As it was, the money damages directly and indirectly sustained by the corporation considerably exceed \$50,000. The case in which this compound was packed was shipped without any mark upon it, or verbal instructions as to its danger-

ous nature, and the employés of the road even billed it as "dealings," under the impression that it was a manufacturing chemical, or patent medicine: an article of the most dangerous character and subject to the highest class of special rates was thus forwarded as third-class freight. Curiously enough, also, and as if for the purpose of illustrating the absolute necessity of full notice of contents in all cases of shipping explosives, a box of fuses from another manufacturer, made to explode this very compound, was shipped on the same car, and the two packages were placed side by side. A magazine of the most dangerous character was thus made to move through the towns and villages of the Commonwealth, without a single precaution taken, and without the knowledge even of the employés of the road. Had the explosion taken place a few seconds earlier, as the Providence & Worcester passenger train was passing the freight train, and the vibration of which should properly have brought it about, then one or more carloads of passengers must have been blown to pieces.

On examination it was found that no provision for such cases had been made in the criminal law of the Commonwealth. The transportation of explosives cannot, of course, be prohibited by law; it should, however, be guarded by every precaution against accident. In case of disaster the corporations are liable in damages to any extent; it is but justice that shippers who forward such articles without giving full notice of their nature should be subject to a criminal penalty. Provision for such cases has long existed in the statute law of England and of the United States, and by oversight only has been omitted from that of Massachusetts. The commissioners would, therefore, in order to secure a uniform responsibility, recommend the passage by the legislature of an act based upon the United States law (U. S. Statutes at Large, Vol. 14, p. 81), but with such changes as make it conform to the character of our legislation. A draft of this law will be found in Appendix L of this report.

THE COLLISION AT "KNOW-NOTHING" CROSSING.

On the 12th of October a collision took place between a freight train, which was moving to and fro in the process of making up, on the tracks of the Boston & Providence Rail-

road, and the afternoon special train on the Woonsocket division of the Boston, Hartford & Erie road, on the track of the Boston & Albany, at the crossing of the two at grade, at the west side of the city. This accident properly falls within the ensuing railroad year, but the commissioners propose to mention it now, as any influence it may have on legislation should not be deferred. This collision, accompanied with loss of life and the destruction of two locomotives, curiously illustrates the utter impossibility of preventing accidents in the long run, wherever two roads are allowed to cross each other at grade. This subject was pressed upon the attention of the committee on railways of the last legislature. Certain corporations desired to have the existing law, which compels every engine-man, before reaching a crossing at grade, to stop his engine at some point within five hundred feet therefrom (General Statutes, chapter 63, § 93), to be so modified as, in certain cases, where the precaution was unnecessary, to leave in the hands of this board a dispensing power, or a power to substitute other regulations for stopping. This law applies to all railroads used for the transportation of passengers;—one passenger train a week passes over the Grand Junction Railway, and yet this constitutes it a passenger road, and compels every one of the four roads entering Boston on the north side of the city to stop every train or single locomotive, amounting to nearly 250 stoppages each day, at the track of this road. A great annoyance and an unnecessary delay and expense are thus incurred. The rule established is an excellent one, but it does admit of exceptions which ought to be provided for. In the case of the Grand Junction, for instance, the hours during which stopping is necessary could be limited to certain portions of the day, and a reduced speed only required at other times. These cases are, however, purely exceptional, and, as a general rule, too many precautions cannot be taken at these crossings. At the hearing of the last session the existing law was sustained on the ground that, whatever inconvenience it might occasion, it at least rendered collisions impossible. After a careful consideration of the circumstances attending the collision of October 12th, the commissioners are wholly unable to suggest any additional securities. Every precaution was there taken which the law can provide. Not only did all trains of both roads stop at this crossing in obedi-

ence to the law, but an experienced signal-man and a simple and well-understood system of signals was provided, over and above the statute precautions, and yet in spite of all this, on a clear day, and in broad daylight, a collision took place. Unless caution can be legislated into engineers, and presence of mind into signal men, the law can do nothing more in such a case as this. The commissioners are unwilling to let the occasion pass without recommending, as strongly as they can, that under no circumstances shall any railroad hereafter to be constructed be allowed to cross the track of another railroad at grade. Where the crossing is at a point where the interchange of passengers takes place, a two-story depot and a system of switches will provide for every contingency. It is simply a question of the exercise of a little ingenuity attended by a small expenditure of money, but there is no serious difficulty to be overcome.

TRANSPORTATION OF CATTLE BY RAIL.

Before closing this part of their report, the commissioners desire to say a few words on the subject of the transportation of live stock by rail. This matter also was brought to the attention of the legislature at the last session. Members of the committee on railways have informed members of this board that it was then intended to refer the subject to the commissioners to report upon, but that, through some oversight, no action was taken in the premises. The question is one of great importance, both in a material and in a humanitarian point of view, and one to which the commissioners have devoted some attention. As at present conducted on the railroads of the United States, it is no abuse of language to call the whole system of cattle transportation an outrage on the first principles of humanity. Between the prairies of Kansas and of Missouri, and the cities of New York and Boston, there are now three usual places of rest and refreshment for cattle,—Chicago, Buffalo and Albany. The accommodations afforded at these places are very ample and the cattle are there supplied with food and water, and opportunity for rest. Their sufferings in transit between these places are, however, indescribable, as every traveller knows who has ever, on some hot summer day, glanced at a cattle-train as it stood on a railroad siding. The animals are taken directly from the prairie, which is the earthly paradise of all dumb creatures, and

are crowded as close as they can stand into cars, which are then slowly hauled, through from one to three days, to some point of destination. These trains yield the road to most others and pass hours on sidings; the animals are without any food or water, and often with insufficient ventilation in summer or shelter in winter; they are jolted off their legs and then goaded till they struggle up, for they cannot be permitted to lie down; they thus arrive at their destination trampled upon, torn by each others' horns, bruised and bleeding, having, in fact, suffered all that animals can suffer and live. Under the most favorable circumstances they leave the train panting, fevered and unfit to kill; under the least favorable, a regular percentage of dead animals is hauled out of the cars. The average shrinkage between Chicago and Boston is estimated at 10 to 15 per cent., and this does not include loss through deterioration in the quality of the meat, or the fact that, by goring and scratching, the hides are injured for purposes of tanning to an extent heretofore unknown. The argument of the drovers, whether correct or otherwise, is that shrinkage, deterioration and injury under the present system, involve less loss than a more humane but more costly transportation. The commissioners entertain grave doubts even on this point. Were the improved cars which have been invented brought into steady use, it would remain to be seen whether cattle transportation in them would not, through the better condition of the animals and the superior quality of the meat, command a price more than equal to the increased tariff rates. This board has nothing to do with the sanitary considerations involved in the matter; the simple question to be discussed here is the practical one:—What can be done in the premises? No real and radical reform can be anticipated until some line of roads shall demonstrate the fact that animal food, delivered on the hoof and in good order, is worth materially more in the market than the same commodity poisoned and reduced in quantity in course of transportation; that, in fact, humanity is the better economy. Though legislation cannot effect this full result, it can and should do something for animals, as it has already done much for the poorer classes of emigrants. A law was passed in 1869 (Acts, chap. 344) regulating this subject within this Commonwealth, and the officers of the society for the prevention of cruelty to

animals inform the commissioners that this law has been productive of most beneficial results. After consultation with the officials of the state board of health, the commissioners are not prepared to say that still further state legislation may not produce most advantageous results in the direction indicated in the report of that board on the subject of abattoirs, which act directly back on the methods of transportation. (First Report of State Board of Health, pp. 20-32.) This branch of the subject is, however, hardly within the province of this commission, nor, indeed, can any state legislation go to the root of the abuse, which lies in the wholly unregulated transportation of cattle through the country at large. The question in fact is not a state question; it is, on the contrary, one directly affecting "commerce between the states," and can only be dealt with by the national government. At present, food tainted in the course of transportation is brought into Massachusetts and endangers the health of the people; Massachusetts can affect that transportation only through her representatives in Congress. In view, therefore, of the importance of this question in every point of view, whether of humanity, of economy or of health, the commissioners would recommend that the legislature cause a memorial on the subject to be prepared for immediate submission to Congress, and that it be forwarded to that body with the usual instructions to our senators and representatives in regard to it.

PART II.

The remainder of this report must be devoted to a discussion of what may not incorrectly be termed the general railroad problem; which includes the relations of the roads, both materially and politically, to the community and the law-making power. Before entering upon this portion of their work, the commissioners desire to recall attention to a passage in their previous report in relation to the topics involved in it. When they approached the subject a year ago they excused themselves from entering upon it, because of "the brief time they have had to pursue their investigations, the immense and conflicting interests involved, the necessity of falling into the fewest possible errors, and the utter futility of any legislation, which partakes rather of the nature of force than of an educated and reflecting public opinion. * * * Any solution of the questions arising out of the intricate relations of the community and the railroad corporations requires time and study, and a hasty or ill-considered solution is worse than none at all. The problem needs but to be stated to have the difficulties surrounding it appreciated. * * * No system which could possibly be proposed at this time would be based upon a correct understanding of these complicated considerations, or could command any general respect or stand the test of criticism. Such a work must be the last result, rather than the beginning of the labors of a commission." (pp. 42-3.) The distrust here expressed as to the value of their own conclusions is by no means yet removed from the minds of the commissioners. They are fully conscious that eighteen months is a period very insufficient in which to master so difficult a subject. The careful consideration they have given to it during the last year has tended to impress them with a consciousness rather of the difficulties which surround it, than with a confidence in their own abilities to deal with them. At the same time the desire on the part of the last legislature that this question should be met was so manifest, and the popular feeling in regard to it is rising with such

rapidity, that the commissioners feel that they have no choice left to them in the matter. Even if this were not the case, the language of chapter 54 of the Resolves of the last session can hardly be considered otherwise than imperative. It must be taken to cover the whole ground, and to direct immediate inquiry to be made.

The commissioners propose, therefore, to take up this discussion in the present report at the point where they abandoned it in their last. The experience and observations of another year, and the results of the United States census have fully confirmed them in the conclusions heretofore expressed. The degree to which the future of Massachusetts is bound up in the successful prosecution of manufacturing industry, was elaborately discussed in their first report (pp. 12-29, Tables Nos. 5 and 6), and the fact requires no proof, that, next to popular thrift and intelligence, the development of this industry chiefly depends on the excellence and freedom of our arrangements for internal communication. Little need be said in this connection of what is known as the through railroad business of the community,—that which originates perhaps thousands of miles beyond the limits of the state, and, in greatest part, involves connecting lines of road, nine-tenths of which, perhaps, are beyond the jurisdiction of Massachusetts. Interests, second in importance to none, depend upon the promptness, economy and facility with which this business is conducted; but, in the first place, the legislation of no single Commonwealth can affect it in a very great degree, and that of Massachusetts hardly at all; and, in the second place, in most respects it is fortunately in a very satisfactory condition. Sufficient evidence of this statement is found in the returns for 1869-70 of the produce movement, which were adduced a year ago (First Annual Report, p. 34, Table No. 8), as indicating the degree of success with which the all-rail routes kept up the competition with the mixed routes between Boston and interior points. The accompanying table shows the amounts of produce reported as arrived in Boston during the years, and through the channels specified. It will be noticed that the through all-rail routes are gaining more and more on the mixed routes, and now practically control the market. This, as was shown in the previous report, (p. 34,) indicates that the movement in question

TABLE No. 2.

	FLOUR—BARRELS.			CORN—BUSHELS.			OATS—BUSHELS.			BARLEY—BUSHELS.		
	1868.	1869.	1870.	1868.	1869.	1870.	1868.	1869.	1870.	1868.	1869.	1870.
Boston & Albany Railroad, . . .	646,684	728,846	864,380	376,868	1,031,322	760,713	418,062	721,128	1,001,233	728	12,999	15,970
Northern Railroad, . . .	53,060	65,107	78,705	77,115	288,955	500,744	83,234	200,513	313,629	154,635	99,610	205,215
Fitchburg Railroad, . . .	34,211	24,874	52,865	29,862	64,007	108,964	104,737	95,034	361,246	42,688	10,104	33,185
Total by Railroad from West, .	733,955	818,827	995,950	483,875	1,384,284	1,370,421	606,033	1,076,675	1,676,108	197,951	122,713	254,370
Boston & Maine Railroad, . . .	16,515	18,238	17,534	1,574	806	5,129	55,000	3,109	77,337	25,135	26,005	16,753
Providence Railroad, . . .	88,683	61,281	51,339	1,100	632	738	3,593	3,093	2,211	-	-	16,581
Old Colony & Newport Railroad, .	6,711	12,544	4,143	-	800	2,800	-	-	1,504	-	-	625
Portland Steamer, . . .	53,992	40,284	19,787	2,095	-	7,086	1,298	352	62,693	4,020	13,370	21,875
New York Steamer, . . .	307,812	271,635	288,946	68,921	2,356	5,812	49,481	10,840	2,840	-	16,414	6,661
Baltimore Steamer, . . .	131,961	72,656	169,184	71,338	167,329	119,323	22,146	19,637	33,682	-	-	-
Philadelphia Steamer, . . .	25,013	3,699	14,310	100,441	70,606	180,061	8,216	5,476	23,377	1,740	-	-
New Orleans Steamer, . . .	15,213	6,952	-	205,701	17,231	-	6,138	-	-	-	-	-
Sail Vessels, . . .	54,637	16,190	29,374	1,395,399	774,555	535,462	509,565	294,713	169,304	33,144	57,061	39,893
Other sources, . . .	1,190	2,979	64,095	-	21,271	89,570	-	1,536	50,815	-	5,333	4,248
Total from seaboard, . . .	701,727	506,458	658,711	1,847,159	1,055,676	945,981	659,037	338,756	423,853	64,039	118,173	106,536
Total from all sources, . . .	1,435,682	1,325,285	1,654,664	2,331,634	2,439,900	2,316,402	1,262,270	1,415,431	2,099,961	261,990	249,886	360,916

is made at very low rates. Most of this, as well as other through business, is now done by what are known as the despatch lines. These have already been referred to in another connection in this report; but as illustrating the extent of the combinations and the very slight degree of influence to be exercised over them through state legislation, a few figures may not here be out of place.

The Boston & Albany road belongs to three of these combinations, known as the Red, the White and the Blue lines. No reports of these organizations are published, but the first is composed of four companies, aggregating 2,422 miles of road; the second of nine companies, aggregating 3,434 miles; the third of twelve companies, aggregating 4,413 miles. The very smallest of these combinations, five years ago, in 1865-6, immediately after its organization, employed on an average nearly 700 cars, while the largest of them, in 1869, employed over 1,800. The importance of these lines to the internal economy of Massachusetts cannot well be overestimated, yet there are within this Commonwealth but 210 miles of the Red line, or 8.70 per cent. of the whole; but the same number of the White line, or 6.10 per cent. of the whole, and but 418 miles of the Blue line, or but 9.47 per cent. of the whole.

Next to the Boston & Albany, the Boston & Lowell is the Massachusetts corporation most actively concerned in the large railroad combinations. The position of, and the results accomplished by this corporation are, the commissioners believe, without a parallel. Owning in all but 26 miles of road, operating altogether but 125 miles, and representing but \$5,000,000 of capital, this apparently insignificant company, through the energy and ability of its management, has of late exercised a most perceptible influence on the whole railroad system of the country, including the largest and most powerful of its combinations. The corporation has two direct and close connections with the West, one by way of Ogdensburg and the Lakes, the other by way of Montreal, the Dominion and Detroit. Through these it has, during the last year, kept up a direct competition with the more southern routes between Chicago and the East; and, in spite of the greater distance traversed, being the equivalent of 15 per cent. of the whole, this competition has been so effective that it has kept the rates to and from

Boston and the West always as favorable, and often more so, than those to and from New York. This combination mainly operates for through business through the "National Car Company," a Vermont corporation, which furnishes to the several roads 500 cars with adjustable axles. During the ten months ending October 31, 1870, 16,805 tons of outward, and 13,800 tons of inward freight have been moved in these cars at rates sometimes as low as six mills, but generally varying at from one to two cents per mile; while to and from Ogdensburg large amounts have been moved at \$2.50 per ton, or six mills per mile. Meanwhile this combination, so important an element in the prosperity of the Commonwealth, though it controls 400 miles of road to Ogdensburg and 1,150 to Chicago; though it has more than 1,000 additional miles of road contributory to it or fed from it; though it employs some 6,000 freight cars in doing its work of transportation in New England, yet has only 68 miles of it within the jurisdiction or subject to the laws of Massachusetts; not one-twentieth part of the whole.

The policy of Massachusetts as regards these great combinations is, therefore, manifestly dictated by circumstances; it should be one of extreme caution; it should rather avoid the creation of obstacles, than seek to impose regulations. In some respects such a condition of affairs may operate harshly, but this is an evil incident to our political system, under which the power to "regulate commerce between the states" is delegated to Congress. The commissioners, therefore, do not propose to dilate upon matters over which they can exercise little practical influence; they prefer at once to turn the discussion upon a class of interests of not less importance to the Commonwealth, and over which they may hope to exercise a control both direct and immediate.

If the through or external railroad relations of the Commonwealth are in a condition even more satisfactory than they were a year ago, the commissioners greatly regret to say that the same cannot be said of the internal system. A similar criticism was made in their first annual report (p. 42). It was then intimated that a reform was necessary in the whole method of internal transportation; the tariffs of different roads were compared, and gross and inexplicable variations in them found to exist; the system of delivery was pronounced defective; and

finally the corporations were called upon to themselves undertake the work of renovation, thus making unnecessary any attempt at governmental interference. At the close of another year, however, the commissioners are not aware of a single step taken or even in contemplation towards the end indicated by them. It is, of course, impossible to regard such a result as in any way satisfactory, and it only remains for this board to sit down under a confessed inability to accomplish anything, or to have recourse to more definite language, and to suggest a more decisive line of action. Under these circumstances, and pursuing their investigations under the Resolve of the last legislature, the commissioners feel no disposition to shirk any responsibility or to avoid the issue presented.

The commissioners base their investigations and all their economical conclusions on this principle:—All sums exacted from the community for transportation, whether of persons or of property, constitute an exaction in the nature of a tax,—just as much a tax as water rates, or the assessments on property, or the tariff duties on imports. That it is wholly, or in part, a necessary tax,—one which can at most only be reduced to a certain point, but never abolished,—this, in no degree, affects the principle. It is still a tax, adding in itself nothing to the intrinsic character of property, nor affecting the condition of persons, but simply moving the one or the other from point to point. The reduction of this tax to the lowest possible amount paid for the greatest possible service rendered, always observing of course the precepts of good faith and the conditions of a sound railroad system,—this must be the great object the commissioners retain always in view. Much is constantly heard of the importance of railroad charges as an element in the calculations of the Western agriculturist. Under this incessant discussion, and a spirited competition of trunk lines, the cost of transportation of Western produce to the seaboard has now been reduced to a point hitherto regarded as chimerical. During the last summer three mills per ton per mile has been a rate not unknown. The commissioners have no criticism to make upon this.

Any arrangement which enables the farmers of the West to successfully compete with the producers of the Danube and Black Sea is a subject of national rejoicing. The commission-

ers desire none the less to express grave doubts whether the transportation tax weighs as heavily after all upon a farming and agricultural region as it does upon a manufacturing district as peculiarly located as Massachusetts. It here appears in every possible shape ;—it is encountered at every step. It may safely be asserted that there is no branch of Massachusetts industry which is not carried on against competitors more advantageously located. The state has very few natural advantages ; but everything with her depends on the intelligence of the people and the cost of transportation. The West in producing cereals has at least a soil of unsurpassed fertility ; Pennsylvania in manufacturing iron has the ore and the coal in close proximity to the furnace ; [the English mill-owner has his power and his labor in cheap profusion. Almost every article, however, which enters into the industries of Massachusetts has to be brought within her limits from a distance. Her very water-powers are subject to inclement winters and dry summers, while she has to make her ingenuity supply a deficiency in labor. Her food is, then, brought from the North-West ; her wool and her leather from South America, Texas, California and the central states ; her cotton from the South ; her ores from the Adirondacks ; her coal from Pennsylvania ; her copper from Superior, and the list would admit of indefinite extension. Massachusetts is thus merely an artificial point of meeting for all kinds and descriptions of raw material, which is here worked up and then sent abroad again to find a consumer. At every point, coming and going and in process of manufacture, it has to be transported, and it has to bear all costs of transportation in competition with articles of the same description produced elsewhere and by others. Every reduction of the transportation tax acts, then, as a direct encouragement to the industry of Massachusetts, just as much so as if it were a bounty or bonus,—it is just so much weight taken off in the race of competition.

Such is the nature of the transportation tax ; it next remains to inquire as to its amount. The accompanying table (No. 3) shows the returns of the Massachusetts railroad system, as respects gross earnings during the last ten years. They are not entirely accurate for the purposes in view, inasmuch as many of the roads included, such, for instance, as the Boston &

TABLE No. 3.

Gross and Net Income of Railroads in Massachusetts from 1861 to 1870, inclusive, and estimated Income for Roads within the limits of Massachusetts, with the Amount of Taxes for State, County and Town purposes.

		Gross Income.	Net Income.	Estimated Income of Roads within Mass.	Total State, County and Town Taxes.
1861, .	. . . . .	\$9,016,149 12	\$2,916,411 80	\$7,032,596 34	\$7,600,501 00
1862, .	. . . . .	9,933,581 31	3,581,657 61	7,748,193 49	8,605,511 19
1863, .	. . . . .	11,950,739 28	4,424,157 42	9,321,576 70	10,599,097 22
1864, .	. . . . .	16,478,596 16	4,799,256 86	12,853,305 04	12,876,850 59
1865, .	. . . . .	18,974,914 66	4,942,661 93	14,800,433 58	9,199,830 79
1866, .	. . . . .	21,205,527 97	5,383,743 65	16,540,312 03	15,694,039 07
1867, .	. . . . .	21,561,060 96	5,492,565 64	16,817,627 76	19,104,074 79
1868, .	. . . . .	22,761,646 71	5,385,596 94	17,754,084 59	16,056,193 00
1869, .	. . . . .	24,539,722 00	5,926,613 88	19,140,983 16	20,007,863 00
1870, .	. . . . .	*25,003,952 82	*6,392,547 20	*19,503,083 20	21,922,569 00
Totals in ten years,		-	-	\$141,512,195 89	\$141,666,529 65
Gross amount of both taxes in ten years,					\$283,178,725 54
Excess of municipal over transportation tax,					154,333 76

* Ten months reported and two months estimated.

Maine, the Eastern, the Cheshire, and the Hartford & New Haven, return all their receipts, though but a small portion of their respective roads are within the state. A deduction of 22 per cent. is therefore made from the aggregate gross receipts of each year, as an allowance for this variation. Here then is a tax rising from \$7,032,596.34 in 1861, to \$19,503,083.20 in 1870, levied by the railroad corporations for services rendered the community in the way of transportation. An additional column in the table represents the entire state, town and county taxes levied during the same years. These figures should have a very grave importance to the people of Massachusetts. They certainly indicate that the existing production of Massachusetts, estimated at \$700,000,000 annually, pays on account of municipal taxation and transportation alone over \$40,000,000 per annum. While, for reasons hereafter stated, it will not do to press this analogy between the two taxes very far, yet these being two of the principal burdens under which production everywhere labors, it is very important to see how industry in Massachusetts is situated in regard to them, as compared with industry in other localities,—are its burdens here heavier or lighter than elsewhere? As regards the transportation tax it is almost impossible to derive any results of value from a comparison of statistics. This tax has one peculiarity in common with the tariff duties on imports,—the lower it is fixed, within certain limits, the larger in its aggregate it becomes. A large *per capita*, therefore, by no means indicates an oppressive scale of charges, but rather the contrary. Industry pays a large tax because the tax is fixed at a point which enables industry to pay it. For instance, the average contribution of each human being in the United States to the earnings of the railroad system is estimated by the best authority at about \$10 per annum.* Manufacturing communities always make much more use of their railroads than any other. Yet while the *per capita* in Massachusetts rises only to \$13.81 per annum, that in Pennsylvania rises to over \$20. This apparently is largely due to the fact that a single corporation in Pennsylvania, moving alone five-sixths as large tonnage as all the roads in Massachusetts combined, and

* Manual of Railroads of the United States, 1870. H. V. Poor. p. xxxvi.

returning nearly as large an income,* makes this great movement at a charge per ton per mile of a little less than one-third of the usual charge on local movement in this state. The charges on the road referred to and on eight Massachusetts roads are set forth in the accompanying table.

TABLE No. 4.

Average Rate per Ton per Mile in cents on Freight moved in 1869.

	Local Freight.	Through Freight.
Boston, Clinton & Fitchburg,	6.15	5.21
Boston & Lowell,	7.15	2.98
Boston & Maine,	5.04	3.43
Boston & Providence,	3.42	4.54
Cape Cod,	3 53	4 85
Cheshire,	7.32	2.86
Eastern,	6.35	2.56
Fitchburg,	7.46	2.72
Norwich & Worcester,	4.40	4.00
Pennsylvania,	1.72	1.72

The Boston & Albany road should be included in the table, but unfortunately this company does not discriminate in its returns between earnings from through and local freights. Its average charge per ton per mile on its entire freight movement in 1869, was 2.43, or 41 per cent. above that on the Pennsylvania road. No reliable conclusions, however, can safely be drawn from such a comparison; that here drawn by the commissioners is probably correct, but, while one state has a through produce or transit business, or a coal traffic, or a large manufacturing population, which another has not, it is impossible to argue certainly from the one to the other.

* The following are the exact figures in the two cases referred to :—

1869.	Tons carried.	Gross Earnings.
Pennsylvania Railroad,	5,402,991	\$17,250,812 00
Massachusetts Railroads, (total,)	7,378,083	24,539,722 00

Deducting from the totals of the Massachusetts system 22 per cent., as representing the amount properly to be credited to portions of the roads lying in other States, the entire railroad system of Massachusetts proper will be found to return a tonnage movement of 351,914 tons, and a gross earnings of \$1,890,172 more, than the Pennsylvania Railroad.

The case stated, however, fully serves to illustrate the distinction between the municipal and the transportation tax which the commissioners desire to point out. The larger the aggregate of the municipal tax, the heavier the burden imposed by it on the production of the state; while, on the contrary, the higher the total of the transportation tax rises the greater is the volume of business and the lower are the tariff rates probably indicated. The municipal *per capita* and the transportation *per capita* in Massachusetts are each about \$13.80 per annum; the first is 30 per cent. higher than the *per capita* of New York and 64 per cent. higher than that of Ohio, while, as regards cities, the *per capita* tax of Boston is 35 per cent. higher than that of New York, while that of Philadelphia is but 40 per cent. of that of Boston.

A sufficient reference has already been made to the *per capita* transportation tax in this state; so far as any deductions can safely be drawn in regard to it, it would seem to be nearer the average of the whole country than should be the case in so busy and thriving a community. In any event it is safe to say that, taking the two together, a very heavy and oppressive burden is imposed on the annual production of the state. To reduce it is simply to give the Massachusetts manufacturer an equal chance with others in the common market. Meanwhile, so far as the ultimate effect is concerned, in the impetus given to production, a reduction in the municipal tax or a reduction in the transportation rates operate in exactly the same way. A reduction on an average of 20 per cent. in existing railroad tariffs throughout Massachusetts would probably, though it might decrease net earnings, double gross earnings, which are the aggregate tax, and have much the same effect on the prosperity of the Commonwealth as doing away with the whole state tax.

With the municipal tax this board has no concern.* The

* In preparing this portion of their report the commissioners were most kindly and liberally furnished with statistics on the subject of taxation in this country and elsewhere, by the Hon. D. A. Wells, head of the commission on revision of the revenue laws of New York. As these figures will appear in the forthcoming report of the New York commission, it has not been judged necessary to use them here. They reveal, however, the startling facts, that, while on a *per capita* of taxation, Massachusetts is probably the most heavily taxed state in the Union, Boston is unquestionably the most heavily taxed city in the world.

figures concerning it are adduced here simply for purposes of illustration. The discussion of railway charges is of at least as much consequence industrially to a people as the whole ordinary question of taxation; but, in discussing it, the object the community should ever keep in view is, not to reduce the gross amount it pays, but so to regulate and dispose of the burden as to enable it continually to pay more. The commissioners desire, therefore, to remove in the outset any false, though perhaps popular impressions which may exist in regard to what they have here designated as the transportation tax. They are very far from implying or believing that it has been exacted for insufficient services rendered, or that it ought to be or ever can be abolished. On the contrary, it is a payment which has been cheerfully made in compensation for services of inestimable value. Unless, however, both the nature and the magnitude of the burden are clearly understood, it will be impossible to appreciate the prodigious relief and impetus which any sensible reduction of rates must afford to Massachusetts.

Before entering into the discussion as to what, if any, reduction is possible and how it could best be effected, it may be well to examine into what has been already done by the railroads looking in this direction. In order to do this the commissioners have gone back over a period of ten years. The subjoined table (No. 5) shows the rates, according to their own sworn returns, at which several railroad corporations have transported passengers and tons of freight during each of the years between 1861-70. The results do not indicate any material reduction, and, in many cases, a decided increase. The table, however, is not satisfactory, as no distinction is made between through and local business as regards freight; and, as regards passengers, the package and season ticket business, which has vastly increased during the period taken, tends also to vitiate the result. With a view to arriving at a more exact comparison, the commissioners were very anxious to analyze the past returns, dividing earnings between through and local business, and thus ascertaining what had been the charges for each. It was found, however, that certain corporations, particularly the Boston & Albany, whose returns they especially desired to analyze, had failed to apportion their earnings in the method prescribed in the printed forms. The accompanying table, (No. 6) nevertheless,

TABLE No. 5.

RAILROADS.	FARE OF PASSENGERS PER MILE IN CENTS.										FREIGHT PER TON PER MILE IN CENTS.									
	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.
Boston & Albany,	2.66	2.66	2.62	2.71	3.11	3.07	3.03	2.72	2.64	2.77	2.43	2.58	2.75	3.01	3.55	3.16	2.98	2.81	2.43	2.26
Boston & Lowell,	2.32	2.43	2.48	2.00	2.85	2.74	2.72	2.52	2.43	2.29	4.13	3.50	3.75	4.03	4.52	4.75	4.59	4.59	4.67	4.29
Boston & Providence, . . .	2.23	2.10	2.45	2.22	2.20	2.20	2.15	1.95	2.42	2.55	3.21	2.69	2.81	3.60	4.38	4.35	4.21	3.69	3.86	3.45
Fitchburg,	2.06	2.11	2.08	2.06	2.31	2.36	2.31	2.25	2.29	2.30	3.81	3.74	3.26	3.51	4.09	4.33	4.20	4.08	4.35	4.30
Old Colony & Newport, . .	2.46	2.45	2.43	2.43	2.43	2.41	2.48	2.17	2.29	2.27	3.09	3.24	3.20	3.24	3.19	3.49	4.32	4.04	4.60	5.15
Connecticut River,	3.41	3.05	3.22	3.33	3.28	3.34	3.13	3.33	3.22	3.18	5.03	4.79	4.84	5.04	6.19	6.12	6.03	5.24	4.91	4.58
Worcester & Nashua, . . .	2.92	3.18	3.72	3.97	3.91	3.61	3.69	3.57	3.56	3.51	4.94	4.76	4.07	4.97	6.31	5.90	4.85	4.46	4.17	3.79

presents the charges in cents per ton per mile and per passenger per mile for through and local business on a number of the principal roads of the Commonwealth, according to the returns of 1860-65-70. This table verifies the supposition made as regards the previous one; there is no reduction anywhere apparent except that in local passenger charges, which is due to the increased number of commuters, and in through freights, which is due to causes already referred to.

Wishing, however, to establish their position in this respect beyond possibility of question, the commissioners undertook to make a direct comparison of the tariffs on the roads named during the period mentioned. They experienced, however, very great difficulties in doing this. No public board having existed prior to the last year, the Commonwealth had no records of its own on the subject. On applying to the corporations to make good this deficiency, the commissioners were surprised to find that few, if any of them, kept any files of their old tariffs. It was only by chance and with great difficulty that enough could be produced to make a reliable comparison. The corporations, however, afforded every assistance in their power, and finally the tariffs of six roads for 1860 and for 1865 were procured, and these the commissioners have compared with the tables of the existing tariffs of the same roads printed in their first report. (See Tables Nos. 11-27, 28, in First Annual Report.) The result of the comparisons thus made will be found in the subjoined Tables, Nos. 7-8. This comparison establishes the fact that, so far from any reduction having been made in their local fares and freights by the railroads of this Commonwealth during the last ten years, a directly opposite course has been pursued. The tendency has been towards an increase, rather than a decrease, and the rates are to-day, as a whole, higher than they were in 1860.

As a contrast to this policy, and to lend force to the criticisms they propose to make upon it, the commissioners wish here to call attention to the results of a different course pursued elsewhere during almost the same period. The Belgian railroad system now aggregates 1,703 miles in a territory of 11,403 square miles of area, being a mile of railroad to each 2,900 souls in its population and to each 6.69 square miles of territory. Massachusetts has 1,491 miles in a territory of 7,800

TABLE No. 6.

RAILROADS.	PASSENGERS.				FREIGHT.			
	Rate per mile, in cents, on main road and branches.		Rate per mile, in cents, to and from connecting roads.		Rate per ton per mile, in cents, on main road and branches.		Rate per ton per mile, in cents, to and from connecting roads.	
	1860.	1865.	1870.	1860.	1865.	1870.	1860.	1870.
Boston, Clinton & Fitchburg, .	-	-	2.37	-	-	6.15	-	5.21
Boston & Lowell, .	-	3.99	2.52	-	10.87*	7.15	-	2.98
Boston & Maine, .	2.13	2.56	2.12	1.63	5.13	5.04	2.92	3.43
Boston & Providence, .	3.98*	2.31	2.42	.82*	5.07	3.42	1.24	4.54
Boston & Worcester, .	2.12	2.42	-	2.46	6.29	-	2.78	-
Cape Cod, .	-	2.83	3.55	-	10.68*	3.53	-	4.85
Cheshire, .	3.75	4.06	4.78	3.49	7.23	7.32	3.24	2.86
Eastern, .	2.32	2.58	1.90	2.44	5.38	6.35	3.09	2.56
Fitchburg, .	2.16	2.40	2.36	1.98	7.51	7.46	2.61	2.72
Average, .	2.51	2.76	2.18	1.74	5.52	5.62	3.17	2.90

* The commissioners are not responsible for the accuracy of the returns on which this table is based. In many cases the results would seem to indicate manifest errors and great carelessness in the methods of keeping accounts. No other statistics are, however, to be had, and until better are produced by increased care, these must be taken for what they are worth.

TABLE No. 7.

		1860.		1865.		1870.	
	Miles.	Fare.	Rate per mile, cents.	Fare.	Rate per mile, cents.	Fare.	Rate per mile, cents.
<i>Boston and Albany Railroad.</i>							
Boston to Albany,	202.10	\$5 00	2.47	\$6 00	2.92	\$6 00	2.92
“ to Pittsfield,	150.46	4 00	2.66	4 75	3.15	4 75	3.15
“ to Chapel Station,	2.80	10	3.57	10	3.57	10	3.57
“ to Longwood,	3.10	10	3.22	10	3.22	10	3.22
“ to Cottage Farm,	3	10	3.33	10	3.33	10	3.33
“ to Newtonville,	8.10	22	2.71	25	3.08	18	2.22
“ to Brighton,	5	15	3	15	3	15	3
Cottage Farm to Allston,	1.12	-	-	5	4.46	5	4.46
“ to Newton,	4	-	-	15	3.75	15	3.75
Allston to Brighton, . . . . .	.88	-	-	5	5.68	5	5.68
“ to Newton,	2.88	-	-	12	4.16	12	4.16
Brighton to Newton,	2	10	5	10	5	10	5
Newtonville to West Newton, . . . . .	.90	10	11.11	5	5.55	5	5.55
Auburndale to Rice's Crossing,	2.20	-	-	10	4.34	10	4.34
Grantville to Wellesley,	1.30	10	7.69	10	7.69	10	7.69
Natick to Lake Crossing,	1.30	-	-	10	7.69	10	7.69
“ to South Framingham,	3.80	15	3.94	15	3.94	15	3.94
South Framingham to Ashland,	2.70	-	-	15	5.55	15	5.55
Cordaville to Southville, . . . . .	.80	10	12.50	5	6.25	5	6.25
Westborough to Southville,	3.90	15	3.84	15	3.84	15	3.84
Worcester to Grafton,	6.20	20	3.22	25	4.03	25	4.03
East Holliston to Holliston,	1	10	10	10	10	10	10
“ to Metcalf's,	3	15	5	15	5	15	5
“ to Bragg's,	5	20	4	20	4	20	4
“ to Milford,	8	25	3.12	28	3.50	28	3.50
Chapel Station to Longwood, . . . . .	.30	-	-	5	16.66	5	16.66
<i>Boston and Lowell Railroad.</i>							
Boston to Wilton,	55	\$1 65	3	\$1 85	3.36	\$1 70	3.12
“ to Nashua,	40	1 20	3	1 35	3.32	1 25	2.75
“ to Lowell,	26	75	2.89	90	3.46	80	3.07
“ to Medford,	5	15	3	15	3	15	3
Lowell to Middlesex,	1	10	10	10	10	10	10
“ to Chelmsford,	3	10	3.33	15	5	15	5
Chelmsford to Tyngsborough,	3	10	3.33	15	5	10	3.33
Tyngsborough to Little's,	4	10	2.50	15	3.75	15	3.75
Winchester to E. Woburn,	1½	10	6.66	10	6.66	10	6.66
Woburn to N. Woburn,	1½	10	6.66	10	6.66	10	6.66
Chelmsford to Little's,	7	20	2.85	30	4.28	25	3.59
Woburn to E. Woburn,	½	10	20	10	20	10	20
Wilmington to Billerica and Tewksbury,	4	15	3.75	15	3.75	15	3.75
<i>Connecticut River Railroad.</i>							
Springfield to South Vernon,	50	\$1 70	3.40	\$1 90	3.80	\$1 90	3.80
“ to Greenfield,	36	1 25	3.47	1 35	3.75	1 35	3.75
“ to Chicopee,	3.50	10	2.85	10	2.85	10	2.85
“ to Chicopee Falls,	6	15	2.50	15	2.50	15	2.50
Chicopee to “ “,	2.50	5	2	5	2	5	2
“ to Willimansett,	3.50	15	4.28	15	4.28	15	4.28

TABLE No. 7—Concluded.

		1860.		1865.		1870.	
	Miles.	Fare.	Rate per mile, cents.	Fare.	Rate per mile, cents.	Fare.	Rate per mile, cents.
<i>Connecticut River R. R.—Con.</i>							
Willimansett to Holyoke, . . .	1	\$0 10	10	\$0 10	10	\$0 10	10
Holyoke to Smith's Ferry, . . .	5	15	3	20	4	20	4
Smith's Ferry to Mt. Tom, . . .	2	—	—	—	—	10	5
Northampton to Hatfield, . . .	4	15	3.75	15	3.75	15	3.75
Greenfield to Bernardston, . . .	7	25	3.37	25	3.57	25	3.57
Bernardston to South Vernon, . .	7	25	3.57	30	4.28	30	4.28
Deerfield to Greenfield, . . .	3	10	3.33	10	3.33	10	3.33
<i>Fitchburg Railroad.</i>							
Boston to Fitchburg, . . .	50	\$1 50	3	\$1 55	3.10	\$1 55	3.10
“ to Groton Junction, . . .	35	1 05	3	1 10	3.14	1 10	3.14
“ to Concord, . . .	20	60	3	65	3.25	60	3
“ to Waltham, . . .	10	30	3	30	3	25	2.5
“ to Belmont, . . .	6	20	3.33	20	3.33	17	2.8
Groton Junction to Shirley, . . .	5	15	3	15	3	15	3
“ “ to Leominster, . . .	11	35	3.18	35	3.18	35	3.18
“ “ to Fitchburg, . . .	15	45	3	45	3	45	3
“ “ to West Acton, . . .	8	30	3.75	30	3.75	30	3.75
“ “ to South Acton, . . .	10	35	3.50	40	4	40	4
Lincoln to Concord, . . .	3	15	3	15	5	15	5
“ to South Acton, . . .	8	25	3.12	25	3.12	25	3 12
Belmont to Waverly, . . .	1	—	—	10	10	10	10
Boston to Cambridge, . . .	3	10	3.33	10	3.33	10	3.33
Stony Brook to Weston, . . .	1	10	10	10	10	10	10
“ “ to Lincoln, . . .	5	15	3	20	4	20	4
“ “ to Waltham, . . .	2	10	5	10	5	10	5
Shirley to Leominster, . . .	6	20	3.33	20	3.33	20	3.33
<i>Worcester and Nashua Railroad.</i>							
Worcester to Nashua, . . .	46	\$1 50	3.26	\$1 75	3.80	\$1 75	3.80
“ to West Boylston, . . .	9	25	2.77	30	3.33	30	3.33
West Boylston to Oakdale, . . .	1	10	10	10	10	10	10
Oakdale to Sterling Junction, . .	2	10	5	15	7.50	15	7.50
Sterling Junction to Clinton, . . .	5	20	4	25	5	25	5
Clinton to So. Lancaster, . . .	1	10	10	10	10	10	10
So. Lancaster to Lancaster, . . .	1	10	10	10	10	10	10
Lancaster to Still River, . . .	4	20	5	20	5	20	5
Still River to Harvard, . . .	2	10	5	15	7.50	15	7.50
Harvard to Groton Junction, . . .	3	10	3.33	15	5	15	5
Groton Junction to Groton Centre, .	3	15	5	15	5	15	5
Groton Centre to Pepperell, . . .	5	20	4	20	4	20	4
Pepperell to Hollis, . . .	3	15	5	20	6.33	20	6.33
Hollis to Nashua, . . .	7	20	2.85	25	3.57	25	3.57

TABLE No. 8.—Rates of Freight, per Ton of Two Thousand Pounds.

RAILROADS.	Miles.	1860.				1865.				1870.					
		1st Class.	2d Class.	3d Class.	4th Class.	1st Class.	2d Class.	3d Class.	4th Class.	1st Class.	2d Class.	3d Class.	4th Class.		
<i>Boston and Albany.</i>															
Worcester to Millbury,	9	\$1 40	\$1 20	\$1 00*	—	—	—	—	—	\$1 40	\$1 20	\$1 20	\$1 00		
Boston to Framingham,	21	2 40	1 60	1 40*	—	—	—	—	—	2 40	1 80	1 60	1 40		
Boston to Worcester,	44	3 00	2 40	1 80*	—	—	—	—	—	3 00	2 40	2 00	1 80		
Springfield to Indian Orchard,	6	1 60	1 40	1 20	\$1 00	\$1 60	\$1 40	\$1 20	\$1 00	1 80	1 60	1 40	1 20		
Worcester to East Brookfield,	20	2 00	1 80	1 60	1 40	2 00	1 80	1 60	1 40	2 40	2 20	1 80	1 60		
Boston to East Brookfield,	64	4 20	3 20	3 00	2 40	4 20	3 20	3 00	2 40	4 20	3 40	2 80	2 40		
<i>Fitchburg.</i>															
Boston to Waltham,	10	1 00	1 00	90	—	1 10	1 00	1 00	1 00	1 50	1 40	1 30	90†		
South Acton to Fitchburg,	25	2 00	1 25	1 00	—	2 50	2 10	1 90	1 60	2 70	2 50	2 00	—		
Boston to Fitchburg,	50	3 00	2 50	2 25	1 75†	3 30	2 90	2 60	2 00	3 60	3 20	2 80	1 55†		
Groton Junction to Fitchburg,	15	1 30	1 00	97½	—	1 60	1 40	1 30	1 10	2 00	1 80	1 50	—		

* Boston and Worcester Railroad.

† Coal.

TABLE No. 8.—Concluded.

RAILROADS.	Miles.	1860.			1865.				1870.				
		Special.	1st Class.	2d Class.	1st Class.	2d Class.	3d Class.	4th Class.	1st Class.	2d Class.	3d Class.	4th Class.	
Connecticut River.													
Holyoke to Springfield,	8	\$1 20	\$0 90	\$0 70	\$1 80	\$1 40	\$1 10	\$0 90	\$1 60	\$1 20	\$1 00	\$0 80	
Holyoke to Greenfield,	28	2 80	2 20	1 80	4 40	3 20	2 80	2 40	3 00	2 60	2 20	2 00	
Springfield to South Vernon,	50	3 60	3 00	2 80	5 20	4 00	3 60	3 40	4 20	3 60	2 80	2 40	
Springfield to Hatfield,	21½	2 00	1 60	1 40	3 20	2 40	2 20	1 80	2 20	1 80	1 60	1 40	

RAILROADS.	Miles.	1860.			1865.				1870.				
		1st Class.	2d Class.	3d Class.	1st Class.	2d Class.	3d Class.	Coal.	1st Class.	2d Class.	3d Class.	Coal.	
Boston and Lowell, &c.													
Boston to North Woburn,	11½	\$1 00	\$0 80	—	\$1 40	\$1 20	—	—	\$1 40	\$1 20	—	—	
Boston to Lowell,	26	1 60	1 40	\$1 25	2 20	2 00	\$1 80	\$1 50	2 20	2 00	\$1 80	\$1 50	
Lowell to Groton Junction,	17	1 20	1 00	—	1 80	1 60	—	—	1 80	1 60	—	—	
Boston to Tyngsborough,	32	2 00	1 80	1 50	2 60	2 40	2 00	—	2 60	2 40	2 00	—	

square miles of area, being a mile of railroad to each 971 souls in its population, and to each 5.23 square miles of territory. Both are manufacturing communities, and, though the population of Massachusetts is less dense than that of Belgium, it is far more disposed to move from place to place. So much is this the case, that in spite of the reduced rates in use in Belgium, and the more than twofold population there, in 1868 its railway system carried only 23,607 passengers for each mile of road, as against 19,700 per mile for the same year on the Massachusetts roads. In regard to freight, however, the case is different. The Belgian roads in 1866, transported 12,211 tons per mile of road, while the Massachusetts roads transported only 4,948. There are, therefore, no fundamental differences as regards physical or economical or industrial conditions which should cause the experience of the one community to be wholly inapplicable to the other.

In 1856, in spite of a considerable increase in the miles of railroads worked, the freight movement of the Belgian roads was found to have seriously decreased. Instead of making good the deficiency in receipts by increased rates on existing business, the administration met the emergency by accepting all traffic that offered at greatly reduced special rates. This policy succeeded so well that in 1861 the principle was adopted as regards minerals and raw materials of a regular low scale of charges, with a reduction according to distance. This resulted in the following year in an increase of 72 per cent. in the tonnage of this class of goods. In 1862 the principle was extended to goods of the next class with similar results. In 1864, freights were re-classified and the new principle applied to all except the first class, or small parcels, which in this country are known as express matter.* The result was summed up by the Minister of Public Works as follows: "In eight years, between 1856-64, the charges on goods have been lowered, on an average, by 28 per cent.; the public have sent 2,706,000 tons more goods, while they have actually saved more than \$4,000,000 on the cost of carriage, and the public treasury has earned

* The Belgian tariff is quite complicated, and it is not deemed expedient to endeavor to analyze it here. Meanwhile the following comparison of charges made on English and Massachusetts roads with what they would be under the Belgian tariff, will perfectly illustrate the practical working

an increased net profit of \$1,150,000." A further reduction, made subsequently to this statement, in 1864, exceeded even these results, and under it the tonnage rose from 4,479,000 tons in 1863, to 6,533,000 in 1864.

In 1865, the government, encouraged by these results, turned its attention to fares, now applying to them the principles before applied to freights. A general scale was adopted, in which the charge per mile was diminished in proportion to the length of the journey over 22 miles. For distances less than 22 miles the old rates were retained, varying between 1.2 and 2.5 cents per mile, according to the class of carriage. Above the 22 miles the rates rapidly decreased until the fares for distances over 155 miles were as low as one cent per mile for first class, and seven mills per mile for second class tickets. Under this system the fare from Boston to Albany, for instance, would be respectively \$2, \$1.40, and \$1, according as it was paid for a first, second or third class ticket. The effect of this change was a singular and very striking illustration of the immediate influence of any reduction of rates on the volume of travel. The traffic within distances of 22 miles, on which no reduction was made, scarcely increased at all. Between 22 and 46 miles, on which distances the reduction was small, it increased only 20 per cent., while on distances over 46 miles, on which a heavy reduction was made, it nearly doubled.

The commissioners regret very much that the more recent official documents relating to these experiments are not now

of the system. The English and American charges are those in use on existing corporations, and between specified termini selected at hap-hazard. The Belgian charges are computed.

ARTICLES TRANSPORTED— PER TON.	Distance in Miles.	RATE.		
		English.	Massachu- setts.	Belgian.
Butter,	32	\$2 40	\$2 00	\$1 16
Lumber, (1st road,)	35	2 16	2 60	82
“ (2d road,)	39	2 40	2 20	88
“ (3d road,)	65	3 00	2 80	1 20
Sugar,	100	3 90	5 00	2 90
Groceries,	116	5 60	5 80	3 30
Hardware,	116	6 60	5 80	3 24
Pig Iron,	126	3 60	3 80	1 44
Bar Iron,	130	4 60	4 60	2 16
Earthenware,	150	7 20	5 80	2 16

within their reach. They cannot be found in any of our public libraries, and the commissioners have not yet succeeded in procuring them from abroad. Their knowledge is, therefore, derived at present from second sources, and any further statement of results would not be free from doubt.

If such, however, have been the results of a bold system of reduction elsewhere, the question naturally suggests itself,—Are those tariffs which have so long existed on our Massachusetts roads the lowest at which they could be operated at a profit, no matter how much their volume of business was increased? If they are, how does it happen that the conditions affecting transportation are so different here from those found to exist in other, and not dissimilar communities? If these questions were put to the railroad officials, they would probably answer by referring to their returns; they would show that, under their present tariffs, the roads could not earn the allotted ten per cent. dividends, and were often unable to supply the means necessary to meet the requirements of an increasing business.

Such an answer could not be considered satisfactory. A similar one was persistently advanced against all reduction in the case of high postage. It wholly ignores the recent experience of the corporations themselves as regards certain descriptions of through business, in which low rates have so stimulated transportation that the railroad managers themselves are unable to say where profit ceases and loss begins. That certain companies have been losers at the rates under which they have carried cannot well be denied; but that any company has lost by carrying through freights at 25 per cent. of the average charge for local freights in Massachusetts is extremely doubtful. Under these circumstances the commissioners wish very clearly to set forth their views as to the policy which the corporations should adopt as regards this important question;—that policy should be a tentative, but a persistent one,—a continual effort to see when and how and where any portion of the burden now pressing on industry could be so removed or so shifted as to enable production to expand, thus replacing in one direction what was conceded to it in another. The commissioners call for no sacrifice of dividends; they do ask for a constant exercise of ingenuity and for a sacrifice of ease. The community has a

right to demand increased facilities from its corporations, even though it may not promise any increase of net earnings in return, provided only such new facilities do not involve an actual and decided loss.

The commissioners believe they speak within safe bounds when they express the opinion that an average immediate reduction of 10 per cent., with an ultimate and not very remote reduction of 30 per cent., could be made throughout the railroad tariffs of the state without permanently reducing net earnings in any appreciable degree. The increased business would, within a very limited period, more than make good the reduction, provided of course that such reduction was judiciously and skilfully made. Not a few railroad managers, however, frankly say that they do not care for this or that business; that it is not remunerative; that they do not see the object of a policy which could only compel the corporation to do twice as much work with no increase, and perhaps even a perceptible diminution of net income. From the employé point of view this argument is certainly entitled to great weight. The commissioners, however, while they do not propose in any way or at any time to suggest interference with the reasonable, and even liberal net earnings of the companies,—while they are confident that no thought of so doing exists either in the legislature or the community at large, yet, at the same time, they are not disposed to attach weight to considerations such as those referred to. Very valuable charters, and privileges practically exclusive, have been conferred on these corporations upon one single consideration,—that, as trustees, they should watch over the interests confided to them, and that, as public servants, they should zealously perform all duties within the sphere of their functions. The dividends were to be a compensation for the performance of these duties. The community has certainly fulfilled its part of the contract, both in the letter and in the spirit, but the tables already presented would seem to indicate that the corporations have taken a more literal view of their responsibilities. They have, it may be inferred, been disposed, so to speak, to leave well enough alone, ignoring the fact that nothing was to be considered “well enough” which admitted of improvement.

The commissioners cannot ask a corporation to carry on any

branch of transportation at a direct and acknowledged loss. To do so would be to place themselves in an apparently untenable position. Yet they do not hesitate directly to assert, what they intimated a year ago, (First Annual Report, pp. 38-41,) that there are many articles of raw material which a sound railroad policy should induce the Massachusetts corporations to transport without any profit, if not even at a direct loss. A case exactly in point is presented in the movement of produce. Prominent railroad officials have assured members of this board that, though of late often carrying food at a loss,—“failing to get back a new dollar for an old one,”—they had yet never done any business at once so rich in results both for their roads and the community. They had built up a local trade,—made living cheap along their routes,—and, from the regular and multifarious demands of those thus made dependent upon them, they had replaced many fold their loss on the carriage of articles of prime necessity. If this has proved true of food, why should it not also prove true as regards coal and ores, and raw material generally? Indeed the commissioners do not hesitate to express it as their opinion, that a large view of their own interests should induce every railroad corporation in the state to offer at once a standing reduction of at least 30 per cent. from regular tariff rates on the carriage of all articles, certified as raw material for manufacturing purposes, to be used at points on the line of their roads. This course would build up a busy community, wholly dependent on any corporation which fostered it. As already stated, the average payment to the railroads by each human being in Massachusetts is at least \$13.81 per annum. Where, then, a railroad builds up its local industry, it simply increases the number of those who contribute to its treasury \$13.81 each year;—the railroad then has a more direct interest in manufacturing development than any other portion of the community. Why, with these facts before them, the corporations insist, as they do, upon exacting a direct profit from every form of carriage of raw material, the commissioners are wholly at a loss to understand. They would still get a profit if they carried it for nothing. The commissioners can only say that, in their opinion, the policy generally pursued in this respect is singularly short-sighted and shallow; they cannot, however, of course, suggest any legislation calculated

to compel corporations to benefit themselves by operating at a loss.

If the conclusions to which the commissioners have come are correct, it manifestly becomes of great moment to know what prospect there is of their practical adoption by the railroad companies. Nothing has come to the knowledge of this board which encourages its members to hope that recommendations now made by them will be followed by any more practical results than those made a year ago. The corporations are naturally wedded to their existing modes of doing business, and look with justifiable distrust on measures of reform emanating from without. The commissioners on the other hand can give them no absolute assurance that the changes they suggest may not result in disaster. Under these circumstances it only remains to devise some method, other than simple recommendation, of effecting the desired result. The commissioners desire, therefore, at this time, to recommend a more definite line of public action to the legislature, and one which can be adapted to any emergency. In doing this, however, they do not wish to create the impression that any immediate exigency exists,—that it is necessary, or even desirable for the community to incur any unusual risk. On the contrary, the present is a time peculiarly appropriate in which to originate a policy, for it can now be done under conditions involving no haste and free from all excitement. The Commonwealth is increasing in wealth and population,—industry is remunerative,—the workshops are busy. If this condition of affairs is to be permanent, however, it is necessary to husband every resource and to remove every unnecessary burden. The present, therefore, being a period of preparation, the commissioners accept it as one very favorable in which to bring forward this delicate question. Watching the development of public experiments, the corporations can enjoy an ample leisure in which to make up their minds as to the course they prefer to pursue, while the Commonwealth, cautiously advancing, need commit itself to no heavy expenditure or untried theory.

There are then two questions on which this board now feels called upon to express opinions:—1st. How can the existing corporations most effectually be brought into a close sympathy with the wants of the community and the popular expecta-

tions?—and, 2d. In case of the failure of all attempts to create this close sympathy, how can the community be most readily prepared to substitute a new and more satisfactory system of management for that now existing?

These questions were somewhat considered during the session of the last legislature. A law was passed declaratory of the general right of the legislature to regulate at its discretion all tariffs of fares and freights on the several railroads of the Commonwealth, without regard to the amount of net earnings. The commissioners are unable to see how any satisfactory results can be arrived at through action under this law. The grounds on which they base this impression can be stated in very few words. All legislation in the direction indicated must be either general or special,—general as applying to all the railroads of the Commonwealth, or special as applying to some individual one of them. No general law of this nature has yet been framed adequate to meet the wants of the case, though attempts at it have frequently been made; nor, indeed, do the commissioners now see how such a law could be framed. Not that it is here meant to imply that the regulation of railroads by law is impracticable, but the doubt is confined to their regulation in this particular way. Other methods have been, and hereafter will be suggested, and their practical merits can only be ascertained after trial; this method has, however, repeatedly been tried and with a uniform result. The cause of failure in this case is indeed most apparent. A general law regulating fares and freights, which would very slightly touch one road, would inevitably ruin another; a tariff which would apply to one class of articles, would be simply ridiculous when applied to another. The law found generally on the statute books provides a *maximum* per mile for each passenger and for each ton of freight. A law on this principle framed to meet the case of the Boston & Albany road, by materially reducing its present rates, whatever result it might produce on that company, would speedily send the Housatonic road into insolvency;—a law which allowed the Housatonic to earn a dividend would have no application to the Boston & Albany. So of descriptions of freight;—a rate per ton per mile applicable to coal or pig iron, would produce results eminently unsatisfactory to the corporations if applied to feathers, wicker-work, wooden-ware, or

household furniture. It is, however, useless to discuss this question ;—a general law which shall meet the circumstances of all the separate roads and provide for all classes of freights, degrees of speed and arrangements for comfort is a practical impossibility. It may, however, be urged that the law of 1870, (chap. 325, § 1) was intended to pave a way for special legislation to meet individual cases. This is very probably the case ;—at the same time, should the legislature undertake to follow out the plan indicated, and to specifically regulate the tariffs of each railroad of the Commonwealth, according to its particular circumstances or the needs of its surrounding community, it will launch itself into an ocean of special legislation such as has never yet been attempted, and no large legislative body could successfully attend to. Should it delegate a power in this regard to the present or any other board of commissioners, it would simply destroy it by so doing. A responsibility would be imposed unsustained by any executive power. An authority to regulate fares and freights over roads owned, controlled and operated by others, would place those in whom such authority was reposed in an entirely false and impossible position. Those managing the roads could produce what results they saw fit ; they could easily demonstrate, by apparent practical workings, the absurdity of anything which was distasteful to them. They could reduce to real failures the most correctly reasoned theories. It is useless for the legislature to look for satisfactory results from the labors of any board which can only work through reluctant agents, and the position of one who can direct but cannot execute is in the last degree unfortunate. It resembles nothing so much as that of a military commander, all of whose subordinates feel a direct and lively interest in his failure.

For these reasons, the commissioners do not believe that the desired relief lies in the direction towards which the legislation of last winter pointed. They believe it does lie in a directly opposite direction. The course they would recommend is the following :—let the state adopt its own plan of railroad management, wholly independent of the private railroad corporations ;—how this plan should, in the opinion of the commissioners, be developed, will be set forth in the subsequent part of this report ;—having done this in such a manner as to commit itself

to the least possible expense consistent with a perfect trial of a great experiment, recognizing it simply as a tentative effort, let the state then give the existing corporations distinctly to understand that the continuance of their corporate existence depends wholly on (1) the results of the experiment in operation ; (2) on their own success in the process of competitive development side by side with it. All restraints should then be removed from the private corporations ; they should be allowed, within the limits of the law, to freely follow their own devices ; the two systems would thus be compelled to work their way out in visible and perfect contrast, and that which, at the expiration of a reasonable term of years, should prove itself to be best, would undoubtedly be adopted with general acquiescence. The corporations, however, should not hereafter have it to say that they were trammelled or tied down during the period of trial ; the principle of private corporate management should have full play, while it distinctly understands that it is on probation.

Whether the corporations should hereafter meet more fully the expectations of the community, or should fail to do so, the commissioners would recommend that the state should be prepared to take its own course. The commissioners do not propose in this connection to discuss the question of state ownership of railroads. There are arguments, based both upon theory and experience, in favor of it and opposed to it. In this country it has not hitherto been attempted with success ; but it is not clear that failure did not arise from the effort both to construct railroads and to originate a system of operating them ; nor, indeed, was failure confined to public enterprises, as it is matter of notoriety that all the early railroad undertakings in private hands passed through long periods of extreme depression and financial tribulation. There are also very grave political considerations involved. The principle upon which our government is founded,—that of least possible governmental interference and largest possible individual development,—has a strong hold on the popular mind. The public opinion of the Commonwealth unquestionably accepts with great reluctance any measure calculated to bring industrial enterprises within the influence of politics. At the same time, a strong and growing popular conviction cannot be ignored, that railroads and internal communication constitute an excep-

tion to this general rule. The success which has attended an opposite policy in Belgium, and the experiments now in progress in Great Britain, have by no means escaped notice. The political considerations involved do not however fall within the province of this board ; it is for the commissioners simply to recommend that course which is, in their opinion, best calculated to certainly and safely reduce the transportation tax ; and it is for the people and their direct representatives to decide whether the advantages likely to flow from that policy are or are not counterbalanced by the dangers to our political system involved in it. The problem before the commissioners is a purely material one, and it is for another tribunal to weigh ulterior and political considerations. The commissioners do not therefore propose to argue these questions or to commit themselves to any opinions in regard to them. Neither, on the other hand, are they disposed to recommend anything rash or sweeping ; but, while they do not wish to destroy the old until the new is established, the new can only be confidently pronounced either a success or a failure after a fair course of experiment. There is nothing to prevent private ownership and state ownership of railroads from existing at the same time in the same community. They have always existed and still do so exist in Belgium. According to the statement of M. Fassiaux, at the time Belgian director-general of Posts, Railways and Telegraphs, made to the British Royal Commission on Railways of 1868,* there were on January 1st, 1864, 1,247 miles of railway in Belgium. Of this amount, 347 miles had been constructed and were worked by the state, belonging to it without reserve. The state derived the profit or suffered the loss (as the case might be) resulting from the working. In addition to this, 117 miles, constructed by private companies and worked by the state, were likewise the property of the state, though a proportion of receipts was paid over to the companies who constructed the roads, as the remuneration for work done. The remaining 780 miles were both constructed and worked by private companies, free from public control. The practical operation of the mixed system of ownership thus existing in Belgium might reasonably be expected to somewhat reproduce

* Minutes of Evidence, Qu. 3,058 ; also, Appendix M.

itself in Massachusetts. Of it M. Fassiaux said in the examination already referred to, "the state railways thus (through a mixed system of ownership) find themselves placed in constant comparison with the railways worked by private companies; on the one hand stimulating them to general improvements, and on the other hand acting as a sort of check against any attempt to realize extravagant profits at the cost of the public." These are the identical effects which the commissioners desire to see produced in Massachusetts. Instead, however, of expressing them as something which might be anticipated, they are here quoted as the actual conclusions of a long experience.

Actuated by these considerations, the commissioners would therefore suggest that the time has come for a practical attempt at the ownership of railroads by the state, and their management with a direct view to the interests of the public. They would therefore recommend that the legislature, under its reserved power, take measures to immediately assume possession of some line of railroad within the limits of the Commonwealth. The next question is,—Where and under what circumstances can the experiment most advantageously be tried?—Which of its roads can the state most advantageously assume? Numerous considerations would tend to influence a recommendation on this point. It is highly desirable that the road upon which this delicate experiment is to be tried should be wholly within the jurisdiction of Massachusetts; it would not be wise to imperil such a movement through the possible jealousy of one state at the ownership of a railroad within its borders by another state. Here in fact lies the great difficulty in the way of state ownership,—a difficulty which no one yet has endeavored theoretically to meet. Massachusetts would certainly be very unwilling to see the state of New York assume possession of the Boston & Albany under some clause in the West Stockbridge & Albany charter, and proceed to manage that road "by the people of New York for the people of New York;" and so Connecticut and New Hampshire might not impossibly entertain a similar jealousy as regards roads partly within their limits. Whether this should prove to be the case or not, however, it is very desirable that so serious and wholly unnecessary a risk should not endanger a mere preliminary experiment. In that experiment,

at least, while there are railroads wholly within the limits of the Commonwealth, there need be no question of jurisdiction involved. The next consideration is one of expense. It is not, in the opinion of the board, advisable for the Commonwealth to involve itself too deeply at once in a novel experiment. There are in the state several roads of limited size and cost which would include every desired condition, and the possession of which could not entail any very serious loss or inconvenience, even in case of failure. In case of success, however, it is very desirable that the experiment should admit of a natural and indefinite expansion in the directions in which it was commenced,—an expansion, indeed, in the nature of a natural growth or development.

All of these conditions are perfectly supplied in the case of only one of the railroads of the Commonwealth,—that between Boston and Fitchburg. This road lies wholly within our jurisdiction ; it could be assumed by the state for a moderate sum ; in case of failure it could be disposed of without serious loss or public inconvenience ; and, finally, in case the experiment resulted in success this route admits of indefinite expansion. In the last respect there is a peculiar propriety in selecting this road as the one on which to try the proposed experiment. The Hoosac Tunnel it is now confidently stated will be completed before the year 1874. It has been constructed solely by the public money, and it would be eminently fitting that, when completed, it should be managed solely in the public interests. By January, 1874, the experiment of state ownership and of public management would be so far advanced that a judgment could be formed as to the expediency of extending it. Were that judgment favorable, the rest of the line to Troy could then be assumed and any question of state jurisdiction would thus be deferred until the preliminary experiment was an approved success, and then it must necessarily present itself. Were the results still encouraging and were this difficulty overcome, the state road, commencing with the present 51 miles of the Fitchburg corporation, developing without undue haste and with no unnecessary assumption of risk or disregard of delicate interests, would in time place Massachusetts in direct communication with the Canadas, the West and the Middle States ; through the northern railroad system and Lake Champlain it would receive

the breadstuffs of the wheat-growing region and the ores of the Adirondack ; through the channels of the Delaware & Hudson Canal Company, it would communicate directly, both by water and rail, with the coal-fields of Pennsylvania. No other route in Massachusetts so properly and undeniably belongs to the community,—for this route the tunnel will create, and the Commonwealth made the tunnel ; in assuming it she would assume but her own. The commanding position of the line in the future is now scarcely appreciated ; towards the north and north-west it has all the advantages of the Boston & Lowell road ; towards the west and south-west all those of the Boston & Albany ; situated between the two, it could bring to bear a direct competition on each, and thus at once practically regulate the whole railroad system of the Commonwealth.

The commissioners would, therefore, recommend the legislature to take immediate steps towards assuming possession of the Fitchburg Railroad. While making this recommendation they do not propose to enter into particulars as to the steps involved in carrying it out, or to report any draught of a bill. These, however, as well as the main subject, have been matters of anxious and careful consideration with them. Should the legislature or the committee on railways be disposed to proceed in the path indicated, the services of the commissioners will be at their command. A very few days, it is believed, will suffice to mature all necessary legislation. Until, however, there is some indication that this is desired, and until the general subject can receive the consideration of the committee, the commissioners have not felt disposed to encumber this report with details. They propose only to offer a general sketch of a policy.

On two points, however, they desire at the start to place their opinions on record, and to remove all possibility of misconstruction.

1. As regards the rights of the present owners of the Fitchburg Railroad Company.

2. As regards the question of state management.

The commissioners cannot entertain a doubt that, in so far as the rights of private property are concerned, they will be guarded with great jealousy in any legislative action which may be had. Not only should the letter of the law be conceded, but in all doubtful cases the Commonwealth should decide

against itself. It should be remembered that the stock certificates of these railroads are not only the title-deeds of property, but the patents of public benefactors. They represent private means supplied to carry out a great public enterprise surrounded in its early days by doubt and risk. It may now be advisable to resume the ownership of the enterprise, but it is especially fitting that every reasonable claim of the present owners should be met in a spirit both of justice and liberality.

The Fitchburg Railroad Company now owns, in main and branch lines, 93.23 miles of track, with 50 miles of double track and 26 miles of siding, being in all, as near as may be, 169 miles of single track. This property is represented by \$3,640,000 in stock, the corporation being free from all indebtedness and having a balance of \$501,230 in its treasury. Computed in the usual method, the road would be said to stand at an average cost of \$38,000 per mile, as represented by all outstanding evidences of property.

There are three methods by which the state can take possession of the franchise and possessions of this company, viz.:

1st. Under section 84 of chapter 39 of the Revised Statutes which provides that "the Commonwealth may, at any time during the continuance of the charter of any railroad corporation, after the expiration of twenty years from the opening of said railroad for use, purchase of the corporation the said railroad and all the franchise, rights and privileges of the corporation, by paying them therefor, such sum as will reimburse them the amount of the capital paid in, with a net profit thereon of ten per cent. per annum, from the time of payment thereof by the stockholders to the time of such purchase."

2d. Under the declaratory Act of the last legislature (Acts 1870, chap. 325, § 2), which provides that "the Commonwealth may at any time take and possess the road, franchise and other property of any railroad corporation after giving one year's notice in writing to such railroad corporation, and paying therefor such compensation as may be awarded by three commissioners, who shall be appointed by the supreme judicial court, and shall be duly sworn to appraise the same justly and fairly. Said commissioners shall estimate and determine all damages sustained by any such railroad corporation by such taking of the road, franchise and other property thereof, and any such cor-

poration aggrieved by the determination of said commissioners, may have its damages assessed by a jury of the superior court in the county of Suffolk, in the same manner as is provided by law with respect to damages sustained by reason of the laying out of ways in the city of Boston."

3d. In the usual business manner pursued by individuals or corporations in similar cases, through negotiation and purchase; as has been done in the case of the telegraph system by the Parliament of Great Britain, and is proposed as regards the railroads of Ireland.

If the Commonwealth took possession under the method first stated it would be necessary to compute the excess of interest at ten per cent. over the dividends actually paid by the corporation since it was organized. The commissioners have not verified the figures contained in the report of the commission on cheap transportation to the legislature of 1870 (p. 68), but, assuming them to be correct, the amount of dividends now in arrear appears to be between 92-3 per cent. of the capital, amounting to a total of \$3,357,000, aggregating, together with the stock capital, almost exactly \$7,000,000; or, otherwise stated, the road, if purchased in this way, would cost the Commonwealth in the immediate neighborhood of \$75,000 per mile, or \$192 per share. As the stock now commands a market price of \$136-7, any arrangement of this nature would certainly constitute no hardship on the shareholders.

In this connection it is of interest to see what, on the same basis of computation, would be the cost to the Commonwealth of its other leading railroads. According to the tables already referred to, the cost of the Boston & Maine would be \$146 per share, or in round numbers, \$80,000 per mile; that of the Eastern, \$177 per share, besides a bonded debt of \$3,037,400, amounting to about \$104,000 per mile; that of the Boston & Lowell, \$180 per share, besides a bonded debt of nearly \$255,000, amounting to about \$113,000 per mile; that of the Boston & Providence, \$185 per share, amounting to about \$105,000 per mile; that of the Old Colony, \$167 per share, besides a funded debt of \$2,986,600, amounting to \$79,000 per mile. Owing to the consolidation of the Boston & Worcester and the Western Railroads, and the complicated questions involved, it is very difficult to estimate the excess of interest over dividends due on the stock of the Boston & Albany. It is, how-

ever, not unsafe to say that, at the time of consolidation, a deficiency of \$2,415,000 existed as regards the Boston & Worcester, and \$1,400,000 as regards the Western, aggregating \$3,815,000, without including the stock dividend of 1868. The present capital and indebtedness of the consolidated road is not less than \$21,000,000, making an aggregate in the neighborhood of \$25,000,000 on 250 miles of road, or \$100,000 per mile. Even, therefore, through the extravagant method provided in the original Act, the Fitchburg road would seem to be in its cost per mile the cheapest in the state for the Commonwealth to assume.

The commissioners are unwilling to commit themselves to any estimate as to the value of this road should the Commonwealth desire to possess itself of it in the method prescribed in the Act of 1870. It is wholly impossible to say what rule or measure of damages the commission or court would lay down in the premises. If the actual present value of the property, or the cost to replace it as it stands, was the measure, it is impossible without long examination to say what that would amount to. It would, undoubtedly, largely exceed the average of \$38,000 per mile, at which their road nominally stands on the books of the company. It would, probably, considerably exceed the present market value of the stock, but the commissioners can form no reliable estimate whether it would exceed or fall short of the \$75,000 per mile arrived at through the computations heretofore made.

The other, and in the opinion of the commissioners, the most judicious method to pursue, is that through negotiation and purchase, reserving the statute methods as a final resort. This method avoids all litigation and hard feeling, and is the more simple and expeditious, as well as much the most economical. The stock of this corporation has of late received eight per cent. dividends, and now sells in the market for about \$136 per share. Under the law of the Commonwealth the dividends are practically limited to ten per cent. per annum. During the last ten years the company has averaged 7.4 per cent. annual dividends, and has never risen above 9 per cent. During the last year it has barely earned its usual dividend, its gross receipts falling off about \$85,000, and its net earnings nearly \$40,000, their estimated amount (\$303,000) being equal to a dividend

of 8.32 per cent.* In view of this decrease apparently the directors of the road have fallen into, what the commissioners cannot but consider, the fatally short-sighted policy of raising the rates of their local freight tariff. This mistake is rather likely to increase than decrease the falling off, and the company can hardly look forward with any confidence to being for an indefinite time to come more than an eight per cent. road. Assuming this as a basis of negotiation, it is difficult to see on what ground the corporation could refuse an offer from the state of guaranteed six per cent. bonds at par in exchange for the stock of the road at a premium of \$50 per share. Every holder of such bonds would, in place of eight per cent. dividends, subject to all sorts of contingencies, and with ten per cent. in remote possibility, annually receive from interest and after exchange nine per cent. guaranteed, or in cash, \$14 per share above the selling market price. Purchased on this estimate, the road would come to the Commonwealth at an average cost per mile of \$50,000, and the commissioners think it safe to say that such a purchase would be one fair and advantageous to both parties. The question is, indeed, not without difficulties, but difficulties of the same nature surrounded the purchase by government of telegraphs in England and of railways in Ireland, and were not found insuperable. Until, however, they could know directly and distinctly what are the wishes and policy of the legislature on this subject, the commissioners have not, of course, felt at liberty to make any overtures to the parties in interest.

Upon the second point, that of state management, the commissioners desire to express their hope that state ownership will not be found to necessarily imply state management. Indeed, in their opinion, the whole result of this important experiment turns on the success with which the question of management can be kept out of politics,—can be held distinct from all party machinery. In this respect many excellent provisions are contained in the bills reported to the last legislature by the commission on cheap transportation. The end in view is to provide a machinery through which the direction of the road shall be confided to trustees, with duties in the nature of those ordinarily pertaining to supervisors of highways. Neither the

* As the returns for 1870 include but ten months exact amounts cannot be given. In the above statement the returns of ten months are averaged over the entire year.

state nor the trustees undertake personally to manage the road, but they simply produce a paid manager, who, only, is directly responsible, and who takes charge of the road under the advisory supervision of the state trustees. One improvement in the machinery proposed the commissioners wish decidedly to recommend. Recent scandalous proceedings in other states have illustrated the necessity of introducing some form of minority representation into corporate elections. In the case of the Erie Railway, and in that of the Boston, Hartford & Erie, many of the largest as well as the most respectable of the stockholders of each company are absolutely deprived of all participation in the management of their property, and even of the power to protect it. However the systems of minority representation hitherto suggested may apply in practice to complicated popular elections, no question can exist that they are perfectly adapted to corporate elections, and would furnish a great safeguard against evils now notorious. If the trustees for the proposed road are, therefore, to be elected by the legislature and from the community at large, it would be well to adopt some system which will enable any considerable class in the community to obtain a representation among them in order to introduce into the board that activity of thought and management which results from the mere discussion of theories, which may yet be rejected; and, finally, this would afford every human precaution against those dangers which in this country so easily beset all public industrial enterprises.

Before bringing this long report to a close, it only remains for the commissioners, in few words, to restate the policy they wish to see initiated. They propose that the two systems of operating railroads, that through a public and that through a private management, should be placed side by side, each under the auspices most favorable to development, and subject to no laws but those of Massachusetts. Both systems will distinctly understand that they are on trial; the private corporations will have a reasonable time afforded them in which to justify the existing management; but, if their results through the coming years are less advantageous to the public than those produced through state control, they must be prepared to surrender their trusts into the hands which conferred them. The managers of these corporations cannot complain that the trial is not a fair

one, upon the ground that the state road will be operated regardless of profit while they will be expected to keep up their dividends. The state road must, under public management, pay the interest on its whole purchase cost, being the equivalent of at least nine per cent. dividends on its present outstanding stock. If, in addition to this, it fails to keep in repair its material and to develop its traffic, then the experiment must end in utter failure. The advantages will, in fact, for some years be wholly in favor of the private corporations. Their burdens will be no heavier; their machinery and organization will be the more perfect. Under these circumstances they should, as finally putting to rest an issue which hitherto they have regarded with apprehension, gladly accept the test, rather than shrink from it. Finally, the corporations and a large portion of the public have strenuously maintained that, in this country at least, the railroad system could most advantageously be managed, both for energy and economy,—as regards the railroads and as regards the community,—through private enterprise. This, as they have already intimated, the commissioners are disposed neither to deny or to concede; it is a subject upon which their minds are wholly open to conviction. They simply desire to try the experiment. Even those who oppose the public control of railroads upon economical or political considerations, can scarcely object to the trial of so limited and carefully restricted an experiment as that now proposed, if only that they may see their anticipations practically realized. Such an unreasoning antipathy to change would exceed even the conservatism of the British Parliament, which is now preparing to devote the whole railroad system of Ireland to a fair attempt at the solution of this difficult problem. The commissioners have only further to say, that they believe the course they have marked out combines as many advantages, with as few dangers, as any which is likely to be suggested; certainly, if it should prove otherwise, the failure will not arise from any lack of anxious consideration on their part, or from any want of a due sense of the heavy responsibility under which they have been called upon to advise.

JAS. C. CONVERSE,
EDWARD APPLETON,
CHAS. F. ADAMS, JR.,
Commissioners.

APPENDIX.

[A.]

INSPECTION OF RAILROADS.

The commissioners have visited several of the railroads of the state, and generally were well satisfied with what they observed of the condition of the roads and the improvements in progress.

Eastern Railroad.

The road-bed and rails of this road are in very good condition and well cared for throughout. Some steel-headed rails were examined on a part of the road, which had been laid four years; several of them were found to be splitting at the ends, and a comparison of them with iron rails in the opposite track was altogether in favor of the iron. These were among the earliest steel-headed rails manufactured, and probably those made now at the same place would not show the same imperfections. The commissioners note this case as a part of the history of the experiment. At the crossings of the Fitchburg and Maine Railroads, Mansfield frogs have been put in, and give much better satisfaction than the old style of frogs or the cast-steel ones. During the past few years, the equipment of this road has been considerably increased, and is kept in very good condition. Miller's coupling has been applied to some of the cars. A car for drovers' use was specially noted as the most comfortable of the kind we had seen. The engine-shops of this road are at East Boston, and the car-shops at Salem, both well supplied with all varieties of good tools. This road is, however, very deficient in its station buildings; many of them are old and altogether unworthy of the population they should accommodate. Those at Portsmouth, Hampton and North Hampton, and at Danvers and Peabody on the Lawrence branch, are exceptions to the above remark. Even in some of these, however, one defect was noticed which appears to pervade nearly all the stations on the Eastern Railroad; viz., the seats, which seem to be ingeniously contrived for the discomfort of the passengers, and on which

the commissioners think this road must hold a patent, as none like them can be found elsewhere. A narrow ledge of plank is fastened to the side of the room, and a moulding projecting about an inch and a half is put on above, at just the right height to strike the middle of the back. These seats are nowhere surpassed in discomfort, except by those in the second-class cars of the Grand Trunk Railroad. Perhaps this is a small matter for state commissioners to allude to, but while discussing broad questions of general policy, they also think it right not to lose sight of minor matters affecting the comfort of the travelling public.

Boston and Maine.

The road-bed and track of this road were also found in excellent condition, new cars and engines frequently added to the rolling stock, and the equipment generally well kept up, although it must be noted that some of the engines, from the amount of smoke and cinders they continually emit, must be very extravagant consumers of coal. The double track of this road, already extending to North Andover, is now under construction to Bradford. A large amount has been expended in the past few years by this company in improving and rebuilding their stations, and there are a few more places where the old buildings are yet standing but are soon to be replaced by new ones. The Boston station, and those at Haverhill and Exeter, especially deserve commendation. New stations at Malden and Reading are going up. A large amount has also been expended the past year in a new freight yard and station at Dover, planned on a liberal and comprehensive scale. New passenger stations at this place and at South Lawrence will come next in order. The branch to Lake Winnipiseogee is kept up in very good condition, and has some fine station buildings upon it. The Newburyport line of this road was also found in good condition.

Fitchburg Railroad.

The road-bed of this road is kept in good order, with good ties and good joints. The rails however are worn down to a greater extent than is usually allowed on roads doing so large a business. It is not considered economy by the officers of this road to repair old rails by welding, and the commissioners are inclined to think that they are right, so far as the use of such rails in main track is considered, but the economy of getting the greatest possible wear out of the rails before renewing appears to be carried quite as far as prudence and safety will permit. Very large expenditures for new rails will, in the judgment of the commissioners,

be necessary upon this road for the next two years, and if, as stated, at some points their iron rails last only two years, it would appear advisable here to try steel rails. This corporation are now making large expenditures at the Boston terminus for the accommodation of the freight of the upper roads; and at Watertown have provided new cattle-yards and buildings on a generous scale for the accommodation of the cattle business which must be removed from Cambridge. At Walden Pond this corporation has provided grounds with all necessary buildings for the accommodation of picnic parties in the summer, an outlay which we have no doubt proves a source of revenue to the company, and an example which we think it would be well for other companies to imitate. The branch to Marlborough was traversed, and also that to Mason, N. H., where a new bridge, five hundred feet long, has been built the past year. The station buildings on the Fitchburg road are not remarkable for beauty and convenience. That at Groton Junction has been ordered by the commissioners to be rebuilt, and that at Fitchburg ought also immediately to be replaced by a new one better adapted to the wants of the community, but in this case it appears to be the duty of the Clinton line to make the first move. The Clinton line and the Fitchburg road were *authorized* two years ago to build a new union depot at Fitchburg; they ought now to be *required* to do so without further delay. In approaching Fitchburg, there is a grade crossing of the Fitchburg road by the Clinton line, which might be and ought to be obviated by making one road pass over the other.

Cheshire Road.

This road was remarkably well built when first constructed; its masonry is everywhere of the first class. No other road in the state enjoys the distinction of having no bridge over the track less than eighteen feet high above the rails. Some steel rails of Krupp's manufacture were noted, which had been laid two years with no perceptible wear. One of them however was "too high," and several pieces of the top had broken off like cast-iron. The shops of this road are at Keene, and are quite a model for convenient arrangement, neatness, and order. The bridge at Bellows Falls is a very substantial structure. From Keene the commissioners took the Ashuelot road, operated by the Cheshire, to South Vernon; a branch line kept up in fair condition, probably not doing a very large business.

Vermont and Massachusetts.

During the spring the bridge over Deerfield River, carried off by the freshet of October, 1869, was rebuilt, and the branch to Turner's Falls completed. During the year considerable ditching has been done upon this road, thirty thousand new ties and five hundred tons of new rails put into the track, which is materially improved over its condition last year. Another year will probably bring the whole length of the road into very good condition. A serious accident occurred during the year at one of the bridges on this road, but it was not owing to any unsoundness or want of strength in the bridge. Some of the bridge guards on this road were noted as broken off, probably done in a pet by some freight brakeman in consequence of being rapped by them, a thing which has been done upon other roads. It is singular that some people should so seriously object to being warned of danger.

Troy and Greenfield.

This road, which was so much injured by the freshet of October, 1869, as to be unfit for further use, has been under repair during the year, and was opened for use again on the fourth of July. Many culverts which were washed out have been replaced by larger and better ones, new bridges built where others had been carried off, the slopes of the embankments protected against washing, ditches widened, and in all respects the road put in better condition than it was before the freshet.

Boston, Clinton and Fitchburg.

This road was found as last year in good condition, well ditched and track well taken care of. At Leominster a new station has been built; at Framingham the line of the road has been straightened. At Fitchburg, as before remarked, the grade crossing of the Fitchburg road by this road should be removed, and a new union depot built. At Clinton Junction the commissioners saw some wire fence made at the factory there, for railroads in Illinois, to be delivered at Chicago for \$1.12½ per rod. This style of fence is worthy of attention from our own roads; it appears to be cheaper than the common fences, and not liable to destruction by fire.

Mansfield and Framingham.

The commissioners have several times passed over this road during the year, and have noted the improvement at each successive visit. The ballasting is now completed, but some additional work should be done on the masonry. Good judgment has been shown

in selection of depot grounds, and convenient buildings have been erected, especially at Foxborough. At Mansfield a very good engine-house of stone with an excellent turn-table has been completed. The commissioners regret that this road was not located so as to pass over the Hartford and Erie, instead of crossing both its lines at grade. Through the enterprise and activity of the managers, a large freight business already passes over this line, but it has brought into view already some defects in the rails, which are light (50 lbs. per yard) for a heavy business.

Taunton Branch and New Bedford and Taunton.

Although making no special visit to these roads, the commissioners have several times had occasion to pass over them. It would seem that these two corporations, with the Middleborough and Taunton, doing chiefly a connected business, should be consolidated into one. The road-bed and track on these roads are kept in good condition. There is a good passenger building at Taunton, except that it is not long enough for proper accommodation of trains. During this year the Taunton road has been building a branch to Attleborough, not yet completed. On the New Bedford road the way-stations have been improved of late, but the terminal station at New Bedford is a disgrace to the corporation and to the city.

Boston, Hartford and Erie.

An anonymous complaint was sent to this board in regard to a bridge on the Woonsocket division of this road. Such communications do not merit attention, still it was deemed best to examine the bridge, that no accident might be chargeable to any want of care on the part of this board. The bridge was found to be amply strong to sustain the weight of trains passing over it, and the piles and upright timbers likely to last for some years. But the caps and stringers were in some places somewhat decayed, and the superintendent was advised to have them replaced by new ones immediately. The road-bed and track on this division were found in fair condition, and the business of this section appeared to be increasing. The Blackstone division has been kept in good order during the past year; but more new rails are needed on some parts of it. Many of the bridge guards on this division had been broken, and notice thereof was given to the superintendent.

Providence and Worcester.

No road in New England occupies a better position for business than this, passing for its whole length through a busy manufacturing

valley, on easy grades, with stations affording business, almost every second mile. A new and convenient station has been built at Blackstone. The second track has been completed from Providence nearly to Woonsocket, and has also been begun at the other end of the road. Road-bed and track in good order. The commissioners are glad to notice that this company readily supply coal dumps and side tracks at any points on their line when requested. Upon some cars of this road, Olmstead's Electric Brake has been applied, which may be put in action on any car by itself, or on all the cars in the train at once from the engine. The power is furnished by a battery in each car; the electric action keys up a loose wheel on the axle, and this winds up a chain attached to the brake. The advantage of this brake over Creamer's or any other acting by a spring is that it is always ready for action, and does not need to be wound up every time it has been used. In the experiments witnessed by the commissioners, it did not appear to have any superiority in quickness of action over the common hand-brake. The superintendent of the road, however, stated that this brake had been in use on five cars for two months, and had given good satisfaction; that it would stop a train in thirty-three seconds in running not much more than the length of the train. Upon this road also some of the bridge guards had been destroyed, probably from the same reasons alluded to in a former case.

Steel Rails.

During the past year the commissioners have kept in mind this subject, and have made inquiries in regard to it from time to time. The use of steel rails and steel-topped rails is increasing and the results of the continued trial of them strengthen the conclusions given in last year's report. The commissioners have received from Mr. Booth a section from one of his steel-topped rails which had been in use on the New York Central Railroad for twenty months; on down grade going east near Rochester. This rail had borne more than six million tons, and had only been reduced by wear on the top $\frac{3}{8}$ of an inch. The commissioners are informed that several of the New England railroads intend to lay these rails during the ensuing year.

The commissioners have also received from Abram S. Hewitt, Esq., of New York, a letter giving the results of an inspection of the iron and the steel-topped rails made at Trenton, N. J., and laid upon the Erie Railway; and they deem this letter so instructive to all who take an interest in the subject, that they take pleasure in publishing it in this report.

NEW YORK, Dec. 15th, 1870.

We have now reached definite conclusions in regard to steel-topped rails. We have made an inspection of every rail laid prior to January 1, 1870, on the Erie Railroad of our make, whether steel-topped or iron. You will bear in mind that the steel used for the heads is puddled, and not cast or homogeneous steel. It is necessarily of low temper, in order to secure a weld with the iron.

It is harder and has more tensile strength than iron, but it is softer and has less tensile strength than cast-steel, even of the low grade (so far as carbon is concerned) used for Bessemer and other steel rails.

A priori, it might be expected that the durability of this material would be intermediate between iron and steel—that is, more durable than iron and less so than steel. It is also intermediate in cost, and the problem to be solved is, whether iron rails, or iron rails with puddled-steel tops, or cast-steel rails are more profitable with a given volume of business.

I think that it is now demonstrated that with a small business, where iron will endure from 12 to 15 years, iron is the more economical material; with a larger business, where iron will endure five years, the puddled-steel tops are the cheapest; and with a larger business, where the average life of an iron rail does not exceed three (3) years, steel rails are the cheapest. Our experience is mainly confined to the Erie Railway, which comes within the third category. In arriving at this conclusion we assume that good iron rails cost \$75 per ton, puddled-steel headed rails \$90 per ton, and cast-steel rails \$105 per ton.

Now for the results on the Erie Railroad, premising that we have made no inspection of the cast-steel rails laid down, and can therefore institute no definite comparison with them, but we are told that the failures during the time covered by our report have been comparatively insignificant, and we believe that the report is true.

The total number of rails delivered, prior to the date when the inspection began was 46,276 rails; of these we found in track 45,716 rails, and 560 rails were not found. Some of these 560 rails may have been overlooked in the track; but in making up the results, we have assumed them to have entirely failed, thus making the worst case for the durability of the rails.

Again, the rails were made by several different methods of piling, some of which have proved to be better than others; and the result would therefore have been more favorable if all the rails had been made by the method which experience has proved to be best.

Of the total number of 46,276 rails, there were puddled-steel tops, 36,238; iron rails, 8,103; doubtful marks, 1,935; by "doubtful marks," is meant, that the inspector could not determine to which class the rails belonged.

The average time of wear in track of these rails is 13 months; and this average time is equal for the steel-topped, and the iron-topped rails; so that the comparison is perfectly fair as to the time, but as a general rule the steel-topped rails were laid in places where the wear is greatest. To that extent the comparison is more favorable to the iron rails than it should be.

The results of the inspection are as follows:—

Steel-Topped Rails.

Good rails in track,	34,867
Imperfect rails in track,	833
Failures, including missing rails,	538
Percentage of failures,	1.5 per cent.
Percentage defective in track,	2.3 "
Total percentage failed and defective,	3.8 "

Iron Rails.

Good rails in track,	6,934
Imperfect rails in track,	593
Failures, including missing rails,	576
Percentage of failures,	7.1 per cent.
Percentage of defective in track,	7.3 "
Total of failed and defective rails,	14.4 "

Doubtful Rails (whether Steel or Iron.)

Good rails in track,	1,738
Imperfect rails in track,	103
Failures, including missing rails,	94
Percentage of failure of rails,	4.9 per cent.
Percentage of defective rails,	5.3 "
Total percentage of failed and defective,	10.2 "

These results go to show that these doubtful rails were mostly iron rails.

For general conclusions, the result may be stated, that on the Erie Railroad where the volume of business is enormous, and from the width of the gauge, the weight of the cars and locomotives is far greater than on narrow gauge roads, and the rate of speed is fully equal to any other American road,

Fourteen four-tenths per cent. of iron rails made in the best possible manner failed in thirteen months' wear, at which rate all the rails will be worn out in ninety months or seven and a half years, making the average life of the rail three and three-quarters years.

Three eight-tenths per cent. of puddled-steel topped rails failed, at which rate all the rails will be worn out in three hundred and forty-two months, equal to twenty-eight and a half years, making the life of the rail fourteen and a quarter years, if we assume that the failures will go on at the same rate and that the rate of failure will be uniform for each kind of rail.

I consider therefore that the results on the Erie Railroad have fully justified the policy of substituting steel-topped rails for iron rails, at an extra cost of ten dollars per ton (in their case), and if *all-steel* rails could be had at an extra cost of ten dollars per ton over the cost of these steel-topped rails, I believe that a still greater economy would result.

This conclusion still leaves open the question whether a cast-steel top may not be advantageously applied to an iron rail, but I do not consider this point of much practical importance, because I believe that all-steel rails can be made as cheaply as iron rails with cast-steel tops, and all difficulty in rework-

ing old steel rails has disappeared with the full success of the Martin process for melting steel scrap on the open hearth of a reverberatory furnace.

The practical result of the renewal of the eastern portions of the Erie Railway with steel-topped rails has been to reduce the requirements for new rails from two thousand tons per month, when Mr. Gould assumed the management of the road, to about six hundred tons per month at the present time. This requirement may however be expected to increase rather than to diminish from this time henceforth ; but being reduced to so small a quantity I have advised Mr. Gould to have the Trenton works prepared for the manufacture of all-steel rails for future renewals, whereby I anticipate that the life of the track will be doubled.

The policy adopted of getting to all-steel, by means of puddled-steel tops, by which the old rails were all made available and the outlay kept within moderate limits is most suggestive for roads doing a large or an increasing business ; and is probably the only practicable method of arriving at the ultimate desideratum of an *all-steel* track, without taxing the resources of the railway corporations beyond their immediate strength to bear.

Faithfully yours,

ABRAM S. HEWITT.

[B.]

CONDENSED STATEMENT OF THE PROGRESS OF NEW RAILROADS.

AMHERST BRANCH RAILROAD—CHARTERED, 1848.

Charter revived, 1864. Organized, November, 1869. Charter amended, &c., chap. 70 of Acts of 1870. No action taken since.

ASBURY GROVE RAILROAD—CHARTERED, 1870.

One mile long; constructed and bought by Eastern Railroad Company.

ATHOL AND ENFIELD RAILROAD—CHARTERED, 1869.

The first instalment, \$25,000, of the capital stock has been paid in this year, and \$18,000 has been expended in engineering and grading. Several towns have voted to take stock. Thirty miles long.

ATTLEBOROUGH BRANCH RAILROAD—CHARTERED, 1870.

Organized, whole amount of capital stock subscribed for, and 60 per cent. assessed and paid in. Road is now nearly or quite completed, and is leased to the Boston and Providence Railroad Company for thirty years, lessees to equip and operate it. Four miles long.

BOSTON, BARRE AND GARDNER RAILROAD—CHARTERED, 1847-9.

During the year, \$61,990 of capital stock has been paid in, making total paid in, \$166,190; \$137,867.93 has been expended for construction, mostly during this year.

DUXBURY AND COHASSET RAILROAD—CHARTERED, 1867.

During the year the whole amount of capital stock (\$350,000) has been subscribed, 20 per cent. paid, and 30 per cent. payable January 1, 1871. Careful surveys of the route have been made, and construction will be commenced soon.

FRAMINGHAM AND LOWELL RAILROAD—CHARTERED, 1870.

Company organized and a portion of stock subscribed for, but nothing further accomplished.

GRAFTON AND MILLBURY RAILROAD—CHARTERED, 1870.

Company organized and a part of stock subscribed for, but no steps have been taken towards construction.

LANCASTER RAILROAD—CHARTERED, 1870.

Company organized in August, and "sufficient stock was subscribed for the organization." An engineer was appointed, and he is now engaged upon the surveys.

MANSFIELD AND FRAMINGHAM RAILROAD—CHARTERED, 1867.

This road was completed and opened in June, 1870. Length, 22.11 miles. Cost of road and equipment, \$638,185.32. Leased to and operated by the Boston, Clinton and Fitchburg Railroad Company.

MASSACHUSETTS CENTRAL RAILROAD—CHARTERED, 1869.

A large part of the stock required before commencing work has been subscribed for, much of it by the towns authorized so to do. No capital stock has been paid in, and a floating debt of \$5,900 has been incurred, chiefly for surveys which have been in progress. Construction of eastern section contracted for.

NEW BEDFORD AND MIDDLEBOROUGH RAILROAD—CHARTERED, 1870.

Company not organized.

SALISBURY RAILROAD—CHARTERED, 1869.

United under provisions of charter with a New Hampshire corporation, under name of Exeter and Salisbury Railroad. Sufficient stock has since been subscribed for by towns and individuals to authorize the building of the road. The subscriptions are on the condition that the road can be leased to some responsible railroad company. The directors have not yet succeeded in effecting a lease, and "everything is dependent on that."

SHAWMUT RAILROAD—CHARTERED, 1870.

Company organized and some preliminary surveys made. Stock not subscribed for. "Further steps, it is expected, will soon be taken."

STOCKBRIDGE AND PALMER RAILROAD—CHARTERED, 1870.

Company organized. Brimfield and Sturbridge have voted to take stock to the amount of \$82,400, conditional on the raising of \$400,000. No subscriptions have yet been made. Efforts will be made this winter to secure subscriptions to stock.

MONADNOCK RAILROAD—CHARTERED, 1869.

Capital of road in this state, \$50,000, all of which has been paid in this year, and the road is in process of construction, \$19,820 having been paid for graduation and masonry and \$14,500 for superstructure during the year. The road is completed to Jaffrey, N. H. A little over two miles of it is in Massachusetts.

WEYMOUTH BRANCH FREIGHT—CHARTERED, 1870.

No information received relative to this road.

[C.]

Commonwealth of Massachusetts.

In the Year One Thousand Eight Hundred and Seventy-One.

A N A C T

TO AUTHORIZE THE FORMATION OF RAILROAD CORPORATIONS.

Be it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same, as follows :

SECTION 1. Any number of persons, not less than ten, may form a company for the purpose of constructing, maintaining and operating a railroad for public use in the conveyance of persons and property within this Commonwealth; and for that purpose may make and sign articles of association, in which shall be stated the name of the company, the places from and to which the road is to be constructed, maintained and operated; the length of such road, as near as may be, and the name of each town and county in this state through or into which it is intended to be made; the amount of the capital stock of the company, which shall not be less than twenty thousand dollars for every mile of road proposed to be constructed, and the number of shares of which said capital stock shall consist; and the names and places of residence of at least five persons who shall act as directors of the proposed company and shall manage its affairs until others are chosen in their places. Each subscriber to such articles of association shall subscribe thereto his name, place of residence, and the number of shares of stock he agrees to take in said company.

[Laws of New York, Acts [1850, ch. 140, § 1; 3 Statutes at Large, 617; Laws of Ohio, Act of May 1st, 1852; 1 Revised Statutes, p. 271; Statutes of Indiana, Gavin & Hord, Vol. 1, p. 504; Statutes of Illinois, Gross, Ed. 1869, p. 541, § 39; Compiled Laws of Michigan, Cooley's Ed., 1857, p. 631, § 1; General Statutes of Kansas, 1868, ch. 23, art. 2, § 5.]

SECTION 2. Said articles of association shall not be filed and recorded in the manner provided in section three of this act, until at least twenty thousand dollars of stock for every mile of railroad proposed to be constructed is subscribed thereto, and ten per cent. paid thereon in good faith, and in cash, to the directors named in said articles of association; nor until there is indorsed thereon, or annexed thereto, an affidavit made by at least five of the directors named in said articles, that the amount of stock required by this section has been in good faith subscribed, and ten per cent. paid thereon in cash as aforesaid, and that it is intended in good faith to construct, maintain and operate the road mentioned in such articles of association, which affidavit shall be recorded with the articles of association, as aforesaid. The provisions of section seven of chapter sixty-three of the General Statutes shall not apply to corporations organized under this act.

[Laws of New York, Acts 1850, ch. 140, § 2; Statutes of Illinois, Gross, Ed. 1869, p. 542 [40]; Statutes of Michigan, Cooley's Ed., 1857, Vol 1, pp. 631-2.]

SECTION 3. Whenever it shall be shown to the satisfaction of the board of railroad commissioners that all the provisions of sections one and two of this act have been complied with, the clerk of said board shall indorse upon the articles of association a certificate of such fact and the approval of the board in writing. The secretary of the Commonwealth shall, upon the same being deposited in his office, and upon the payment of the sum of fifty dollars (\$50), cause the same, with the indorsement thereon, to be recorded, and shall issue a certificate in the following form:—

COMMONWEALTH OF MASSACHUSETTS.

Be it known that whereas [here the names of the subscribers to the articles of association to be inserted] have associated themselves with the intention of forming a corporation under the name of [here the name of the corporation shall be inserted] for the purpose of building and operating a railroad between [here insert the description of the road contained in the articles of association] and have complied with the statutes of this Commonwealth in such cases made and provided. Now, therefore, I, [here the name of the secretary to be inserted] secretary of the Commonwealth of Massachusetts, do hereby certify that said [names of subscribers] their associates and successors, are legally organized and established as an existing corporation, under the name of [name of corporation] with the powers, rights and privileges, and subject to the limitations, duties and restrictions which by law appertain thereto. Witness my official signature hereunto subscribed, and the seal of the Commonwealth of Massachusetts hereunto affixed this day of in the year of our Lord . [Day, month and year inserted.]

The secretary of the Commonwealth shall sign the same and cause the seal of the Commonwealth to be thereto affixed, and such certificate shall be conclusive evidence of the organization and establishment of such corporation at the date of such certificate. The secretary shall also cause a record of such certificate to be made, and a copy of such record duly certified may with like effect as the original certificate be given in evidence to prove the existence of such corporation.

[Acts 1870, (Mass.) ch. 224, § 11; Laws of New York, Acts 1850, ch. 140, § 3; Statutes of Illinois, Gross, Ed. 1869, p. 542, [41;] Statutes of Indiana, Gavin & Hord, Vol. 1, p. 504; Statutes of Michigan, Cooley's Ed., 1857, Vol. 1, p. 632, § 2.]

SECTION 4. The first meeting for the purpose of organizing such corporation shall be called by a notice signed by five or more of the subscribers to such articles of association, stating the time, place and purpose of such meeting, a copy of which notice shall, seven days at least before the day appointed for the meeting, be given to each subscriber, or left at his usual place of business or place of residence, or deposited in the post-office, post-paid, and addressed to him at his usual place of business or place of residence. And whoever gives such notices shall make affidavit of his doings, which shall be recorded in the records of the company.

[Acts 1870, (Mass.) ch. 224, § 9.]

SECTION 5. In case the capital stock of any company formed under this act is found to be insufficient for constructing and operating its road, such company may increase its capital stock from time to time to any amount required for the purposes aforesaid, not to exceed in all forty thousand dollars for each mile of road actually constructed. Such increase must be sanctioned by a vote in person or by proxy of two-thirds in amount of all the stockholders of the company, at a meeting of said stockholders called by the directors of the company for that purpose.

[Laws of New York, Acts 1850, ch. 120, § 9; Statutes of Indiana, p. 520, ch. 131.]

SECTION 6. Every corporation organized under this act, before commencing the construction of its road, shall present to the board of railroad commissioners a petition for approval of location, accompanied with a map of the proposed route on an appropriate scale, and with a profile of the line on a vertical scale of ten to one compared with the horizontal scale, and with a report and estimate prepared by a skilful engineer from actual survey. The board of

railroad commissioners shall, on presentation of such petition, appoint a day for a hearing thereon, and the petitioners shall give such notice thereof as said board shall deem reasonable and proper, in order that all persons interested may have an opportunity to appear and object thereto. If the board of railroad commissioners, after hearing the petition, shall approve the proposed location, the corporation may proceed with the construction of their road: *provided*, that they shall first file with the county commissioners of each county through which the road passes, a plan of the location of the road, defining its courses, distances and boundaries, and another copy of the same with the board of railroad commissioners; but the location so filed shall not vary from the route first presented to said board of commissioners, unless said variation shall be approved by them. And said location shall be filed within two years from the time when the articles of association are filed in the office of the secretary of state. The provisions of sections thirteen, fourteen, fifteen, sixteen and eighteen of chapter sixty-three of the General Statutes shall not apply to corporations organized under this act.

[Laws of New York, Acts 1850, ch. 140, §§ 22-3; General Statutes of Connecticut, 1866, p. 187, § 474; p. 194, § 504.]

SECTION 7. If any corporation formed under this act shall not, within three years after its articles of association are filed and recorded in the office of the secretary of state, begin the construction of its road, and expend thereon ten per cent. of the amount of its capital, or shall not finish the road and put it in operation in five years from the time of filing its articles of association as aforesaid, its corporate existence and power shall cease.

[Laws of New York, Acts 1850, ch. 140, § 47; Statutes of Indiana, Gavin & Hord, p. 517, § 34; Purden's Digest, (Penn.) p. 841, § 21.]

SECTION 8. Every corporation organized under this act shall, within one year after any part of their road has been constructed and opened for operation, cause to be made a map and profile thereof and of the land taken or obtained for the use thereof, and file the same in the office of the secretary of the Commonwealth; and also like maps of the parts thereof located in different counties, and file the same in the offices for recording deeds in the county in which such parts of roads shall be. Every such map shall be drawn on a scale and on paper to be designated by the board of railroad commissioners, and certified and signed by the president and engineer of such corporation.

[Laws of New York, Acts 1850, ch. 140, § 45; Statutes of Indiana, Gavin & Hord, p. 517, § 33.]

SECTION 9. No railroad constructed under the provisions of this act shall be opened for use until it has been inspected and approved as in suitable condition for operation by the board of railroad commissioners.

[General Statutes of Connecticut, 1866, p. 194, § 505.]

SECTION 10. Any corporation having actually constructed and put in operation a railroad under the provisions of this act may be consolidated with any existing railroad corporation of this Commonwealth or of any adjoining state, with whose railroad such new railroad connects or intersects: and that such consolidation shall be ratified by a majority of two-thirds of the stock of each of said corporations at meetings duly called for the purpose, after one year's notice of such meetings duly given through the public prints, in such manner as the board of railroad commissioners shall direct, and that such consolidation is not disapproved by the legislature before such meetings are held; and *provided, also*, that the entire stock and indebtedness of such consolidated company shall not exceed the united stock and indebtedness of the companies prior to such consolidation.

[Laws of New York, Acts of 1869, ch. 917; Statutes of Illinois, Gross, Ed. 1869, p. 537, III.; Statutes of Indiana, Gavin & Hord, p. 526, ch. 137; Statutes of Michigan, Cooley's Ed., 1857, Vol. 1, p. 653, ch. 67; Revised Statutes of Wisconsin, 1858, ch. 79, §§ 1-2; Purden's Digest, (Penn.) p. 841, §§ 24-5.]

SECTION 11. Two corporations created by this state, or by the acts of this and an adjoining state, whose roads enter upon or connect with each other, may contract that either corporation shall perform all the transportation of persons and freight upon and over the road of the other: *provided*, that one year's notice of the intention to make such contract shall be given in writing by such corporations to the board of railroad commissioners, and that such contract is not disapproved by the legislature before the expiration of such year of notice; and *provided, also*, that the income arising from such contracts shall be subject to the provisions of law in regard to the right of the state to purchase the roads or reduce their tolls, in the same manner as that arising from the use of the roads. Section one hundred and fifteen of chapter sixty-three of the General Statutes and chapter two hundred and ninety-eight of the acts of eighteen hundred and sixty-seven are hereby repealed.

[General Statutes, (Mass.) chap. 63, § 115; Acts 1867, chap. 198.]

[D .]

Tabular Statement of Municipal Aid to Railroads, authorized by Acts of the Legislature, the Amount Voted by Towns,¹ and the Vote Required.

RAILROAD AND ACT.	City or Town.	Amount authorized.	Amount voted.	Vote required.
Cape Cod Branch,— 1852, chap. 156,	Nantucket, . .	\$50,000 00	\$50,000 00	Two-thirds, ballot.
Troy and Greenfield,— 1855, chap. 394,	Ashfield, . . Buckland, ² . . Conway, . . Coleraine, . . Charlemont, . . Deerfield, . . Greenfield, ³ . . Hawley, . . Heath, . . Monroe, . . Rowe, . . Shelburne, . . Adams, . . Florida, . . Williamstown, . .	<div style="display: flex; align-items: center;"><div style="border-left: 1px solid black; border-right: 1px solid black; height: 100px; width: 100%;"></div><div style="text-align: center;">3 per cent. on valuation,</div></div> <div style="display: flex; align-items: center;"><div style="border-left: 1px solid black; border-right: 1px solid black; height: 100px; width: 100%;"></div><div style="text-align: center;">3 per cent. of val., — — — Nothing, — \$30,000 00 — Refused, — — — \$6,000 00 60,000 00 — 32,000 00</div></div>	<div style="display: flex; align-items: center;"><div style="border-left: 1px solid black; border-right: 1px solid black; height: 100px; width: 100%;"></div><div style="text-align: center;">Two-thirds.</div></div>	

¹ So far as information has been received at the office of the Commissioners.

² Subscribed \$5,000.

³ Paid \$22,500.

Tabular Statement of Municipal Aid to Railroads, &c.—Continued.

RAILROAD AND ACT.	City or Town.	Amount authorized.	Amount voted.	Vote required.
Rockport,— 1855, chap. 395, 1860, chap. 34, 1862, chap. 78,	Rockport, ¹ " "	\$20,000 00 50,000 00 25,000 00	No action, . . . \$50,000 00 25,000 00	} Two-thirds.
Milford and Woonsocket,— 1861, chap. 98,	Milford,	\$50,000 00	\$50,000 00	Two-thirds.
Northampton and Shelburne Falls,— 1862, chap. 56,	Williamsburg,	2 per cent. on val.,	No action,	Majority.
Cape Cod Central,— 1863, chap. 96, 1863, chap. 104, 1863, chap. 105, 1864, chap. 11,	Chatham, Harwich, Orleans, Brewster,	\$50,000 00 40,000 00 25,000 00 25,000 00	\$50,000 00 ² 40,000 00 ³ 25,000 00 ⁴ 25,000 00 ⁴	} Majority.
Pittsfield and New Haven,— 1864, chap. 242, 1864, chap. 245, 1864, chap. 246, 1864, chap. 249, 1864, chap. 260,	Sandisfield, Becket, Otis, Lee, Tolland,	\$50,000 00 40,000 00 50,000 00 100,000 00 25,000 00	Refused, Refused, \$25,000 00 75,000 00 10,000 00	} Three-fourths, ballot.
Chebacco Branch,— 1866, chap. 58,	Essex,	\$50,000 00	No action,	Two-thirds.

	Williamsburg,	2 per cent. on val.,	\$23,000 00	Majority.
New Haven and Northampton,— 1866, chap. 66,	Fairhaven,	Am't of land damages,	No action,	Two-thirds.
New Bedford and Taunton, Extension,— 1866, chap. 154,	Duxbury,	\$75,000 00	—	} Two-thirds.
Duxbury and Cohasset,— 1867, chap. 65,	Marshfield,	75,000 00	—	
Marblehead and Lynn,— 1867, chap. 111,	Scituate,	75,000 00	—	} Two-thirds.
Hopkinton and Milford,— 1867, chap. 225,	Marblehead,	\$50,000 00 ^a	\$50,000 00 ^a	
Williamstown and Hancock,— 1867, chap. 238,	Hopkinton,	\$40,000 00	No action,	Two-thirds.
Gloucester and Lanesville,— 1867, chap. 287,	Hancock,	\$10,000 00	No action,	Two-thirds.
Plymouth and Vineyard Sound,— 1868, chap. 122,	Gloucester,	\$50,000 00	No action,	Two-thirds.
	Plymouth,	} 5 per cent. of val.,	{	} Majority.
	Falmouth,			
	Sandwich,			
	Edgartown,			
	Chilmark,			
	Tisbury,		—	

¹ Sold its interest to Eastern Railroad Company for \$75,000.

⁴ Hold, each, 125 shares of Cape Cod Railroad.

² Conditions not fulfilled.

⁵ Stock or credit.

³ Subsequently refused.

⁶ Conditionally; conditions not fulfilled and nothing paid.

Tabular Statement of Municipal Aid to Railroads, &c.—Continued.

RAILROAD AND ACT.	City or Town.	Amount authorized.	Amount voted.	Vote required.
Sheffield,— 1868, chap. 203,	Sheffield,	5 per cent. of val., .	—	Two-thirds.
Ware River,— 1868, chap. 224,	Ware,	5 per cent. of val., .	\$70,000 00	Majority.
Williamsburg and North Adams,— 1868, chap. 225,	Adams, Savoy, Cheshire, Windsor, Cunnington, Goshen, Williamsburg, Northampton, Chesterfield, Worthington, Westampton, Plainfield,	5 per cent. of valuation,	No action, — — No action, No action, No action, — No action, No action, — No action, No action,	Majority.
Cape Cod,— 1868, chap. 259,	Eastham, Wellfleet, Truro, Provincetown,	5 per cent. of val., .	\$9,450 00 31,800 00 No action, No action,	Majority.

Northampton and Shelburne Falls,— 1868, chap. 305,	Duxbury,	•	\$75,000 00	}	-
	Marshfield,	•	75,000 00		
	Scituate,	•	75,000 00		
Springfield and Farmington Valley,— 1869, chap. 69,	Springfield,	•	1½ per cent. of val., ²	}	Majority.
	Springfield,	•	1½ per cent. of val., ²		
Springfield and Longmeadow,— 1869, chap. 70,	Athol,	•	} 5 per cent. of valuation,	}	Majority.
	New Salem,	•			
Athol and Enfield,— 1869, chap. 174,	Petersham,	•			
	Dana,	•			
	Prescott,	•			
	Greenwich,	•			
	Enfield,	•			
	Belchertown,	•			
	Palmer,	•			
Amesbury,— 1869, chap. 175,	Amesbury,	•	2 per cent. of val.,	}	Majority.
		•	Refused,		
Lebanon Springs,— 1869, chap. 242,	Adams,	•	} 5 per cent. of val.,	}	Majority.
	Williamstown,	•			
	Hancock,	•			

1 Marshfield voted under Act of 1867.

2 Also to guaranty bonds to amount of ½ per cent. of valuation.

Tabular Statement of Municipal Aid to Railroads, &c.—Continued.

RAILROAD AND ACT.	City or Town.	Amount authorized.	Amount voted.	Vote required.
Essex Branch, ¹ — 1869, chap. 183,	Essex,	\$50,000 00	\$50,000 00	Majority.
Lee and New Haven,— 1869, chap. 243,	Stockbridge,	\$30,000 00	No action,	Majority.
1870, chap. 399,	Pittsfield,	100,000 00	No action,	Two-thirds, ballot and check list.
Massachusetts Central,— 1869, chap. 260,	Williamsburg, Northampton, Easthampton, Westhampton, Hatfield, Hadley, South Hadley, Amherst, Granby, ² Ludlow, Belchertown, Enfield, Greenwich,	5 per cent. of valua- tion,	No action,	Majority.
	Ware,		\$300,000 00	
	Palmer, West Brookfield, New Braintree, Hardwick,		No action,	
			No action,	
			\$70,000 00	
			No action,	
			No action,	
			\$23,700 00	
			No action,	
			No action,	
			\$15,000 00	
			Refused,	
			No action,	

Dana,	5	per cent. of valuation,	5	per cent. of val.,	Majority.
Petersham,	5				
Barre, ³	5				
Phillipston,	5				
Oakham,	5				
Hubbardston,	5				
Rutland,	5				
Princeton,	5				
Holden,	5				
Sterling,	5				
Boylston,	5				
West Boylston,	5				
Clinton,	5				
Lancaster,	5				
Northborough,	5				
Berlin,	5				
Bolton,	5				
Hudson,	5				
Stow,	5				
Marlborough,	5				
Sudbury,	5				
Wayland, ⁴	5				
Weston,	5				
Winchendon,	5				
Amesbury,	2	per cent. of val.,	2	per cent. of val.,	Majority.
Monadnock, ⁵ —					
1869, chap. 284,					
West Amesbury Branch,—					
1869, chap. 319,					

¹ See Act of 1870.² One majority in a little more than forty votes.³ Any railroad chartered in 1869 that may pass through Winchendon.⁴ Unanimously.⁵ Less than two per cent. of valuation.⁶ One hundred and three to two.

Tabular Statement of Municipal Aid to Railroads, &c.—Continued.

RAILROAD AND ACT.	City or Town.	Amount authorized.	Amount voted.	Vote required.
Hopkinton Branch,— 1869, chap. 321,	Hopkinton,	\$60,000 00	No action,	Majority.
Boston, Barre and Gardner,— 1869, chap. 361,	Worcester, Holden, Princeton, ² Rutland, Barre, Hubbardston, Gardner,	1 per cent. of val., 5 per cent. of val., Not more than 5 per cent. to be subscribed in all to any rail- roads,	No action, \$262,200 00 30,000 00 ¹ Refused, — — — \$37,600 00 38,500 00	Majority. } Majority.
Wrentham Branch,— 1869, chap. 363,	Wrentham,	5 per cent. of val.,	No action,	—
Holyoke and Westfield,— 1869, chap. 379,	Holyoke,	3 per cent. of val.,	No action,	—
Essex and Salisbury,— 1869, chap. 392,	Newburyport, ³	1 per cent. of val.,	\$70,000 00	Majority.
Newburyport City (Street Railroad),— 1869, chap. 398,	Newburyport, ³	1 per ct. of val., ⁴	\$70,000 00	Majority.
West Amesbury Branch,— 1869, chap. 401,	Groveland, West Newbury,	5 per cent. of val.,	No action, \$50,000 00	Majority. } Majority.

	Canton, . . .	5 per cent. of val., . . .	No action, . . .	Majority.
Canton and Hyde Park,— 1869, chap. 403, . . .				
North Attleborough Branch,— 1869, chap. 414, . . .	Attleborough, . . .	5 per cent. of val., . . .	No action, . . .	Majority.
Ware River,— 1870, chap. 73, . . .	Hardwick, . . . New Braintree, . . . Barre, . . . Hubbardston, . . . Templeton, . . . Winchendon, . . . Phillipston, . . .	{ 5 per cent. of val., . . .	{ \$30,000 00 — — — \$50,000 00 50,700 00 ⁵ Refused, . . .	{ Two-thirds. list.
1870, chap. 255, . . .				
Northampton and Amherst, (Amh't Br.)— 1870, chap. 70, . . .	Amherst, . . . Hadley, . . . Hatfield, . . . Northampton, . . .	{ 5 per cent. of val., . . .	{ — — — —	{ Two-thirds. list.
Grafton and Millbury,— 1870, chap. 269, . . .	Grafton, . . . Millbury, . . .	{ 5 per cent. of val., . . .	{ — —	{ Two-thirds. list.
Exeter and Salisbury,— 1870, chap. 289, . . .	Salisbury, . . .	5 per cent. of val., . . .	\$20,000 00	Check { Two-thirds. list.
Framingham and Lowell,— 1870, chap. 241, . . .	°	5 per cent. of val., . . .	—	Check { Two-thirds. list.

1 \$14,800 additional, voted conditionally.

2 Tie vote.

3 Unanimous vote of City Council.

4 Stock or credit.

5 Three per cent. of valuation.

6 The several towns in which the road may be located. No returns have been received from any town.

Tabular Statement of Municipal Aid to Railroads, &c.—Concluded.

RAILROAD AND ACT.	City or Town.	Amount authorized.	Amount voted.	Vote required.
Hopkinton,— 1870, chap. 299,	Hopkinton, . Milford, . Ashland, .	{ 5 per cent. of val., }	{ 5 per ct. of val., '70, — — —	{ Two-thirds. list. }
New Bedford and Middleborough,— 1870, chap. 398,	Lakeville, . Middleborough, . Acushnet, . Fairhaven, .	{ 5 per cent. of val., }	{ Refused, — — —	{ Two-thirds. list. }
Essex Branch, from Eastern Railroad,— 1870, chap. 129,	Essex, ¹ .	\$50,000 00	\$50,000 00	{ Two-thirds. list. }
Southbridge and Palmer,— 1870, chap. 405,	Southbridge, Sturbridge, . Brinfield, . Holland, . Wales, . Palmer, .	{ 5 per cent. of val., }	{ — \$48,600 00 33,800 00 7,200 00 — —	{ Two-thirds. list. }

¹ Appropriated \$50,000 towards building the road.

[E.]

Commonwealth of Massachusetts.

RAILROAD COMMISSIONERS' OFFICE, NO. 7 PEMBERTON SQUARE, }
Boston, September 24, 1870. }

To the President, Treasurer, Superintendent, and Engineer of the.....

GENTLEMEN :—Herewith we enclose a copy of the new form of return prepared by this board, for the year ending September 30th, 1871. We send it at this time, as required by law, in order to give you the year's notice, so that books may be kept in accordance therewith. The board desire to have the returns in such a shape that a clear and intelligible view of the railroads of Massachusetts, and their business, particularly in this state, may be presented. They will be obliged to you for any suggestions tending to improve the form of the return, either by additions or omissions, and will give such suggestions careful consideration before preparing the form for the following year.

In regard to this return, it will be noticed that "the total amount of income which has been expended in construction, equipment, and purchase of property," is asked for. This will require, of course, research into the past records of the company, but the year will afford ample time to do it, and the board expect that a full return will be made under this head, which, when once done, will not again require time, but will only be added to when necessary. It is, of course, known to the community, that many roads have for years made no dividends to their stockholders, but the public probably have little idea how great an amount of income has been spent for their increased accommodation, instead of being distributed among the stockholders. When income has been appropriated to completing original construction and equipment, or paying off debts incurred for that purpose, whether floating or funded, to building branches or second track, or to purchase of property, it should be returned under this head. Amounts charged off for depreciation

should not be included, nor interest paid on debts; but amounts paid to sinking funds to redeem debts are to be included.

Under the head of "Cost of road, equipment, and property," a slightly different classification of some items has been made, which, in some cases, will require estimates of value to be made by the officers best acquainted therewith. Some roads have been in the habit of entirely neglecting the distribution of items of cost; but this practice must be corrected for the future, and, if the statement cannot be obtained from the books, competent persons must be employed to make the distribution.

Under the head of "Description of road," the intention is to get an intelligible statement of the actual facts of how many miles of railroad there are in Massachusetts, and how many miles have been operated to furnish the income and require the expenses reported. The former returns have been anything but clear in this respect.

The statements as to "Rolling Stock," "Miles run," &c., are intended to be fuller than before, and a new head is introduced, "Classification of business," which it is expected will furnish very valuable information. Perhaps you can give us valuable suggestions in regard to this subject.

In regard to charging any part of the money paid out during the year to capital account, it seems to the board there may often be times when this is a proper course. It should be for such objects as are mentioned, and only for these under extraordinary circumstances. The gradual increase of business requires, of course, a gradual increase of equipment, buildings, and sidings, to correspond with it, which should be met from the annual income. Whatever is done more than this and charged to capital, the board desire a clear statement in regard to it.

The classification of operating expenses has been somewhat changed from the old returns, and, it is believed, improved. Any suggestions in regard to this head will be received with pleasure. The board are perfectly aware that on a well-managed road, the items of expense are distributed much more minutely, but it is not deemed best to call for all these items in a report to the state.

If you are in doubt as to the meaning of any of the queries, or how to answer them, please communicate with the board. On or before the 15th of September next, another copy of the return will be sent.

FORM OF REPORT OF RAILROAD CORPORATIONS,

PRESCRIBED BY THE BOARD OF RAILROAD COMMISSIONERS, UNDER THE PROVISIONS OF CHAPTER 307 OF THE ACTS OF THE YEAR 1870.

To be returned to the Board on or before the first Wednesday of November, annually.

Report of the.....Railroad Company,

FOR THE YEAR ENDING SEPTEMBER 30TH, 1871.

CAPITAL STOCK AND DEBTS.		\$
Capital stock authorized by charter,		
Capital stock authorized by votes of company,		
Capital stock paid in,		
Capital stock paid in, per mile of road owned by company,		
Capital stock paid in, proportion for Massachusetts,*		
Funded debt as follows:—		
1st mortgage bonds, due, rate of interest,		
2d mortgage bonds, due, rate of interest,		
3d mortgage bonds, due, rate of interest,		
Total amount of funded debt,		
Unfunded debt, incurred for construction, equipment or purchase of prop- erty,†		
Total amount of debt,		
Proportion of debt for Massachusetts,*		
Proportion of debt per mile of road,		
Total amount of income which has been expended (in addition to funds de- rived from capital and debts) in construction, equipment and purchase of property, ‡		
Total means applied to construction, equipment and purchase of property,		
Proportion of above for Massachusetts,*		
Number of stockholders,		
Amount of stock held in Massachusetts,		
Number of stockholders in Massachusetts,		
COST OF ROAD, EQUIPMENT AND PROPERTY.		
<i>Construction of Road and Branches built by Company.</i>		
Grading and Masonry,		
Bridging,		
Superstructure, including rails,		
Land, land damages and fences,		
Passenger and freight stations, wood-sheds and water stations,		
Engine-houses, car-sheds and turn-tables,		
Interest paid during construction, discount, &c.,		
Engineering, agencies, salaries and other expenses during construction,		

* Unless some very good reason exists to the contrary, this proportion should be for the miles of road in this State compared with the whole. If you think the proportion should be made on a different basis, please state the reasons therefor.

† This item is not to include balances due other roads, unclaimed dividends, or anything connected with the ordinary operations of the road. It refers only to debts incurred for permanent investments.

‡ In some former reports, certain sums taken from income have been charged off for depreciation. These sums are not now to be reckoned and included under the head of "income expended in construction," &c. Depreciation should properly be charged to maintenance, not as an addition to the permanent investment.

Total expended for construction,	\$
Average cost of construction per mile of road built by company,	
Same per mile of single track built by company, not including sidings,	
Proportion of cost of construction for Massachusetts,*	

Equipment.

Locomotives and snow-plows,	
Passenger, mail and baggage-cars,	
Freight and other cars,	
Machine-shops, machinery and tools,	
Total for equipment,	
Average cost of equipment <i>per mile of road operated</i> by company,	
Proportion for Massachusetts,*	

Property Purchased.

branch, original cost,	
Stock of road, shares, purchased for	
Bonds of road, nominal amount, purchased for	
Steamboat, nominal amount, purchased for	
Lands in, not necessary for operation of road,	
Total of additional property purchased,	
Property in Massachusetts,	
Whole amount of permanent investments,	
Proportion for Massachusetts,	
Amount of sinking funds on hand to meet debts,	

DESCRIPTION OF ROAD.†

Length of main line of road, from to	
Length of main line of road in Massachusetts,	
Length of main line of road [in other States, specifying each,]	
Length of line with track laid, if road is not completed,	
Length of double track on main line,	
[Branches owned by company. Name and description of each, single or double track,]	
Total length of branches owned by company,	
Total length of branches owned by company in Massachusetts,	
[in other States, specifying each]	
Aggregate length of sidings and other tracks not above enumerated,	
Same for Massachusetts,	
Total length of tracks belonging to this company,	
Same for Massachusetts,	

Roads belonging to other Companies, operated by this Company under Lease or Contract.

[Name, description and length of each,]	
Total length of above roads,	
Total length of above roads in Massachusetts,	
[in other States, specifying each,]	
Total miles of road operated by this company,	
Total miles of road operated by this company in Massachusetts,	
Number of stations on all roads operated by this company,	
Same for Massachusetts,	

Rolling Stock.

Locomotives (average weight of engines in working order)	
Tenders (average weight of tenders full of fuel and water)	
Snow-plows (average weight)	
Passenger cars (average weight)	
Mail and baggage cars (average weight)	
8-wheel box freight cars (average weight)	
4-wheel box freight cars (average weight)	
8-wheel platform cars (average weight)	
4-wheel platform cars (average weight)	
Other cars,		

Total Per mile
No. operated*Miles run, Rate of speed, &c.*

Miles run by passenger trains,	
Rate of speed of express passenger trains, including stops,	
Rate of speed of accommodation trains, including stops,	
Miles run by freight trains,	
Rate of speed of freight trains, including stops,	
Miles run by other trains, and for what purposes,	
Total train miles run,	
Number of passengers carried,	
Total passenger mileage, or passengers carried one mile,	

* See note on preceding page in regard to proportion.

† Lengths in the statement to be given in miles and decimals. Characteristics of road will be required in a separate report, and when once made need not be repeated from year to year.

Passenger mileage to and from other roads,	.	.	.	.	.
Number of tons carried,	.	.	.	.	.
Total freight mileage, or tons carried one mile,	.	.	.	.	.
Freight mileage to and from other roads,	.	.	.	.	.
Average rate of fare per mile (not including season tickets) received from passages on roads operated by this company,	.	.	.	.	.
Average rate of fare per mile received from passengers to and from other roads,*	.	.	.	.	.
Average rate of fare per mile from season-ticket passengers, reckoning two passengers per day to each ticket,	.	.	.	.	.
Average rate of freight per ton per mile on roads operated by this company,	.	.	.	.	.
Average rate of freight per ton per mile to and from other roads,*	.	.	.	.	.
Average number of cars in passenger trains,	.	.	.	.	.
Average number of cars in freight trains,	.	.	.	.	.
Number of persons regularly employed by company,	.	.	.	.	.

CLASSIFICATION OF BUSINESS.

Passengers coming from other States,	.	.	.	.	.
Passengers going to other States,	.	.	.	.	.
Passengers travelling only within this State,	.	.	.	.	.
Passengers to Boston (season ),	.	.	.	.	.
Passengers from Boston (season ),	.	.	.	.	.
Season-ticket passengers to be reckoned once a day each way.	.	.	.	.	.

FREIGHT IN TONS.

	Brought from other States.	Carried to other States.	Carried within this State only.	Taken from Boston.	Carried to Boston.
Anthracite coal,
Bituminous coal,
Petroleum,
Iron and steel rails,
Castings and other iron,
Other metals,
Iron and other ores,
Stone and sand,
Lime and cement,
Lumber,
Live stock,
Dressed carcasses, smoked and salted meats,
Flour,
Grain,
Other Agricultural products,
Manufactures,†
Merchandise,†
Ice,
Other articles,

EXPENDITURES CHARGED TO CAPITAL ACCOUNT DURING THE YEAR.

Main line, extension or alteration of road,	.	.	.	.	.
Branches, extension or alteration, specifying each,	.	.	.	.	.
Double track extension,	.	.	.	.	.
Land,	.	.	.	.	.
Passenger and freight stations, wood-sheds and water stations,	.	.	.	.	.
Engine-houses, car-sheds and turn-tables,	.	.	.	.	.
New locomotives and snow-plows,	.	.	.	.	.
New passenger, mail and baggage cars,	.	.	.	.	.
New freight cars,	.	.	.	.	.
Machine-shops, machinery and tools,	.	.	.	.	.
Purchase of other roads, specifying what,	.	.	.	.	.
Subscriptions or loans to other roads, specifying what,	.	.	.	.	.
Any other expenditures charged to capital account,	.	.	.	.	.
Total,	.	.	.	.	.

* After deducting all allowances for tolls, or use of cars, &c.

† Manufactured articles starting from the place of manufacture, so far as known, are to be reckoned under the first head; after they have arrived at a depot for sale, they become a part of the general merchandise of the place, and on any second transit are to be reckoned under the second head.

The last two columns apply only to the roads terminating in Boston.

EXPENDITURES ON OPERATING ACCOUNT FOR THE YEAR.

Maintenance of Way and Buildings.

Repairs of road, exclusive of bridges and new rails (including labor and materials in new sidings),	.	.	.	.	.	.
New iron rails, deducting old rails sold,	.	.	.	.	.	.
Steel rails,	.	.	.	.	.	.
Repairs of bridges,	.	.	.	.	.	.
Repairs of buildings and fixtures,	.	.	.	.	.	.
Repairs of fences, road crossings and signs,	.	.	.	.	.	.
Removing ice and snow,	.	.	.	.	.	.
Total for maintenance of way and buildings,	.	.	.	.	.	.
Per mile of road kept in repair,	.	.	.	.	.	.
Per mile of single track kept in repair, not including sidings,	.	.	.	.	.	.
Total length of steel and steel-headed rail track now laid on the road,	.	.	.	.	.	.

Traffic Expenses.

[To include oil, fuel, clerks, watchmen and incidentals about shops.]

Repairs of locomotives and snow-plows,	.	.	.	.	.	.
New locomotives and snow-plows,	.	.	.	.	.	.
Repairs of machine-shops and machinery,	.	.	.	.	.	.
New machine-shops and machinery,	.	.	.	.	.	.
Repairs of passenger, baggage and mail cars,	.	.	.	.	.	.
New passenger, baggage and mail cars,	.	.	.	.	.	.
Repairs of freight and other cars,	.	.	.	.	.	.
New freight and other cars,	.	.	.	.	.	.
Fuel (for cars and engines)—number of cords of wood,	.	.	.	.	.	cost,
Fuel (for cars and engines)—number of tons of coal,	.	.	.	.	.	cost,
Oil and waste (for cars and engines),	.	.	.	.	.	.
Salaries, wages and incidentals, chargeable to passenger department,	.	.	.	.	.	.
Salaries, wages and incidentals, chargeable to freight department,	.	.	.	.	.	.
Wages of switchmen, gate-keepers, signal-men and watchmen, unless included above,	.	.	.	.	.	.
Gratuities and damages, passenger account,	.	.	.	.	.	.
Gratuities and damages, freight account,	.	.	.	.	.	.
Total,	.	.	.	.	.	.
Per mile of road operated,	.	.	.	.	.	.
Per mile of single track operated, not including sidings,	.	.	.	.	.	.

Miscellaneous.

Amount paid other companies for tolls on freight and passengers, or for use of cars, specifying each company and amount,*	.	.	.	.	.	.
Amount paid other companies as rent for use of road, specifying each company and amount,	.	.	.	.	.	.
Telegraph expenses,	.	.	.	.	.	.
United States taxes and stamps,	.	.	.	.	.	.
State taxes,	.	.	.	.	.	.
Local taxes,	.	.	.	.	.	.
Insurance, loss by fire, and damages paid for fires set by engines,	.	.	.	.	.	.
General salaries and office expenses, law expenses and all other expenses (except interest) not included in any of the above items,	.	.	.	.	.	.
Total miscellaneous,	.	.	.	.	.	.
Total expenditures for operating the road,	.	.	.	.	.	.
Per mile of road operated,	.	.	.	.	.	.
Per mile of single track operated, not including sidings,	.	.	.	.	.	.
Proportion for Massachusetts,	.	.	.	.	.	.

REVENUE FOR THE YEAR.

Receipts from passengers on roads operated by this company,	.	.	.	.	.	.
Receipts from passengers over other roads as toll or for use of cars,	.	.	.	.	.	.
Receipts from freight on roads operated by this company,	.	.	.	.	.	.
Receipts from freight over other roads as toll or for use of cars,	.	.	.	.	.	.
Receipts as rents for use of road,	.	.	.	.	.	.
Receipts for mails,	.	.	.	.	.	.
Receipts for express,	.	.	.	.	.	.
Total earnings,	.	.	.	.	.	.
Per mile of road operated,	.	.	.	.	.	.
Per mile of single track operated, not including sidings,	.	.	.	.	.	.
Proportion for Massachusetts,	.	.	.	.	.	.

* This is intended to include any allowance made other roads for the use of their cars, or any difference allowed to them between your regular fares and freight on your road, and the rates you receive for passengers and freight brought by or carried to these other roads. As this amount is charged here as an expense, the same amount must be included in the "receipts for passengers and freight," under the next head. In the case, however, of a *pro rata* division of fares and freight on several roads, constituting together a long line, the remarks as to difference of fares and freight would not apply. You will enter, however, in such case, under this head, anything allowed for use of cars, entering the same amount, also, on the other side with your receipts.

Income from other sources,		\$
Total Income,		
NET INCOME, DIVIDENDS, &C.		
Total net income above operating expenses,		
Paid for interest,		
Paid in dividends per cent. for the year,		
Paid to sinking funds,		
Balance for the year or surplus,*		
Surplus at commencement of the year,*		
Total surplus,*		
Invested as follows,		
Cash and loans,		
Balance of accounts due from other roads,		
Other uncollected accounts,		
Materials for repairs,		
Fuel and stores,		
Any other items,		

* In some former reports, surplus has been reported as embracing stocks and bonds, or real estate. Such amounts now are to be included under the head of "Income expended in construction, equipment and purchase of property," and the cost of each stated under the head of "Property purchased." Surplus is held to include only balance of operating accounts, not permanent investments; and unclaimed dividends, balance due other roads (if it is so). &c., are to be deducted from it, before reporting amount here. In case you have no surplus, and the balance turns out the other way, state the particulars of the deficiency.

GENERAL BALANCE SHEET AT LAST CLOSING OF ACCOUNTS.

LIST OF ACCIDENTS IN MASSACHUSETTS.

	FROM CAUSES BEYOND THEIR OWN CONTROL.		FROM THEIR OWN MISCONDUCT OR CARELESSNESS.		TOTAL.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers,						
Employés,						
Others,						

STATEMENT OF EACH ACCIDENT.

NAME AND RESIDENCE OF OFFICERS.

PROPER ADDRESS FOR THE COMPANY.

Report of the Street Railway Company,

FOR THE YEAR ENDING SEPTEMBER 30TH, 1871.

CAPITAL STOCK AND DEBTS.		
Capital stock authorized by charter,		\$
Capital stock authorized by votes of company,		
Capital stock paid in,		
Capital stock paid in per mile of railway owned by company,		
Funded debt, due per cent. interest,		
Unfunded debt, incurred for construction, equipment or purchase,		
Total amount of debt,		
Total amount of debt per mile of railway owned by company,		
Amount of income expended in construction, equipment and purchase,		
Total means expended in construction, equipment and purchase,		
Number of stockholders,		
COST OF RAILWAY.		
<i>Railways and Branches built by Company.</i>		
Grading and paying,		
Track, including timber, rails, &c , and laying,		
Interest during construction, commissions, discounts, &c., allowed to contractors and others,		
Engineering, agencies, salaries and other expenses during construction,		
Total cost of construction,		
Average per mile of single track built by company, not including sidings, &c.,		
<i>Other Railways and Branches purchased.*</i>		
original cost,	purchased at	
Total cost to this company of railways and branches purchased,		
Total cost to this company of all railways built and purchased,		
Average per mile of single track, not including sidings,		
COST OF EQUIPMENT.		
Number of horses, cost		
Number of cars, cost		
Number of other vehicles, cost		
Land owned by company,		
Buildings owned by company,		
Other articles of equipment,		
Total cost of equipment,		
Average per mile of single track <i>operated</i> , not including sidings, &c.,		
Total cost of railway and equipment,		
Amount of sinking funds on hand to meet debt,		
Property owned by company not needed for operating road,		
DESCRIPTION OF RAILWAY.†		
Length of railway owned by company, with description of its several lines and branches, and length of each,		
Length of railway laid with double track,		
Aggregate length of switches, sidings, &c.,		
Total length of track, measured as single track,		
Total length of track paved,		
Weight of rail per yard, and description of rail,		
Length of railway belonging to other companies, measured as single track, not including sidings, &c., operated by this company, with description of same,		
Total length of single track, not including sidings, &c., operated by this company,		
MILES RUN, &c.		
Total number of miles run during the year,		
Average cost per mile run,		
Total number of passengers carried in the cars,		
Total number of round trips for the year,		
Average number of passengers per round trip,		
Rate of speed adopted, including stops,		
Number of persons regularly employed by company,		
Rates of fare,		
EXPENSES CHARGED TO CAPITAL ACCOUNT FOR THE YEAR.		
Extension of tracks,		
New horses,		
New cars, and other vehicles,		
Land,		
Buildings,		
Total,		

* Naming each road and cost of same.

† The lengths required to be given in miles and decimals.

EXPENSES OF OPERATING THE RAILWAY.		\$
Repairs of road-bed and track,	.	.
Repairs of cars and other vehicles, harness, and horse-shoeing,	.	.
Repairs of buildings,	.	.
Keeping good the stock of horses,	.	.
Wages and salaries of all persons employed, excepting president, treasurer and superintendent, and their clerks,	.	.
Provender,	.	.
United States taxes,	.	.
State taxes,	.	.
Local taxes,	.	.
Rent and tolls paid other companies for use of their roads, specifying amount to each,	.	.
Amount paid other companies for use of bridges and ferries, specifying amount to each,	.	.
Insurance,	.	.
Damages for injuries to persons,	.	.
General salaries, and office expenses, and all other expenses except interest not included above,	.	.
Total expenses,	.	.
Per mile of single track operated, not including sidings, &c.,	.	.
REVENUE FOR THE YEAR.		
Received from passengers on railways operated by this company, and for tickets sold,	.	.
Received from other railways, as tolls or rent, specifying amount from each,	.	.
Received for mails,	.	.
Received for sales of manure,	.	.
Total earnings,	.	.
Income from other sources,	.	.
Total income,	.	.
NET INCOME, DIVIDENDS, &C.		
Total net income above operating expenses,	.	.
Paid for interest,	.	.
Paid in dividends, per cent. for the year,	.	.
Paid to sinking funds,	.	.
Balance for the year, or surplus,	.	.
Surplus at commencement of year,	.	.
Total surplus,	.	.
Invested as follows, viz.:		
Cash and loans,	.	.
Materials for repairs,	.	.
Other items,	.	.
Amount of unredeemed tickets at end of year,	.	.

GENERAL BALANCE SHEET AT LAST CLOSING OF ACCOUNTS.

LIST OF ACCIDENTS IN MASSACHUSETTS.

	FROM CAUSES BEYOND THEIR OWN CONTROL.		FROM THEIR OWN MISCONDUCT OR CARELESSNESS.		TOTAL.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers,						
Employés,						
Others,						

STATEMENT OF EACH ACCIDENT.

NAME AND RESIDENCE OF OFFICERS.

PROPER ADDRESS FOR THE COMPANY.

[F.]

Commonwealth of Massachusetts.

In the Year One Thousand Eight Hundred and Seventy-One.

A N A C T

TO AMEND CHAPTER THREE HUNDRED AND SEVENTY-TWO OF THE ACTS OF THE YEAR EIGHTEEN HUNDRED AND SEVENTY, REQUIRING RAILROAD TRAINS TO BE FURNISHED WITH CERTAIN TOOLS AND APPLIANCES.

Be it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same, as follows :

SECTION 1. Section one of chapter three hundred and seventy-two of the acts of the year eighteen hundred and seventy is hereby amended, by striking out the words "two traversing jack-screws" in the third and fourth lines, and inserting in the fifth and sixth lines the words "ropes and chains suitable for hauling cars" instead of the words "chains, ropes and blocks suitable for hauling cars and engines."

SECTION 2. This act shall take effect upon its passage.

[G.]

Commonwealth of Massachusetts.

In the Year One Thousand Eight Hundred and Seventy-One.

A N A C T

REQUIRING SAFETY SWITCHES TO BE PLACED UNDER CERTAIN CIRCUMSTANCES IN THE MAIN LINES OF RAILROADS.

Be it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same, as follows :

SECTION 1. Every railroad hereafter constructed in this Commonwealth shall be equipped, throughout its main line of road, with the Tyler, or such other form of safety switch as shall previously receive the approval in writing of the board of railroad commissioners. All railroad corporations of this state, whenever any additional switches are placed in their main lines of road, or any switches now in use on their main lines of road, and of patterns not approved by the board of railroad commissioners, are worn out or require for any cause to be renewed, shall lay down in such main line only safety switches approved as aforesaid.

SECTION 2. Any railroad corporation disregarding the provisions of this act, shall forfeit to the Commonwealth the sum of two hundred dollars for each and every switch put down in violation of it, and a further sum of twenty-five dollars for each and every month that any such switch is kept in use. It shall be the duty of the railroad commissioners to see that this act is complied with, and the attorney-general shall sue for any forfeiture incurred under its provisions.

[The Tyler switch was referred to in the last report of the Hon. George B. Wright, commissioner of railroads and telegraphs in the State of Ohio, and a careful description of it can there be found. (Annual Report, 1869, p. 13.)]

[H .]

Commonwealth of Massachusetts.

In the Year One Thousand Eight Hundred and Seventy-One.

A N A C T

TO REGULATE CHARGES FOR THE CARRIAGE OF MERCHANDISE ON
RAILROADS.

*Be it enacted by the Senate and House of Representatives, in General Court
assembled, and by the authority of the same, as follows :*

SECTION 1. No railroad corporation of this Commonwealth shall charge or collect for the transportation of goods or merchandise for any shorter distance, any larger amount as toll or freight than is charged or collected for the carriage of similar quantities of the same class of goods over a longer distance upon the same road.

SECTION 2. Any railroad corporation offending against the provisions of this act, shall be liable for each offence to a penalty not less than fifty nor more than five hundred dollars, to be recovered by any party aggrieved in an action of tort.

[Laws of Michigan, 3d April, 1869, No. 109, § 17, cl. 9.]

[I.]

PETITION OF THE FITCHBURG RAILROAD COMPANY, *that the Board of Railroad Commissioners will fix and determine what compensation shall be made by the Boston, Clinton and Fitchburg Railroad Company, for entering on the Fitchburg Railroad, and for the past, present, and future use of said railroad and its appurtenances, &c.*

The facts in this case as they appeared by the statements of counsel, which were not controverted, are as follows :—

The Boston, Clinton & Fitchburg Railroad, which is the successor of the Fitchburg & Worcester Railroad, has a legal connection, by a suitable and convenient track, with the Vermont & Massachusetts Railroad, and with the Cheshire Railroad, which by lease uses the track of the Vermont & Massachusetts Railroad, in the town of Fitchburg. This connection is entirely independent of the Fitchburg Railroad, but for many years the Vermont & Massachusetts Railroad and the Cheshire Railroad, by some arrangement with the Fitchburg Railroad, have brought their freight trains upon the tracks and into the yard of the latter road, where the freight has been distributed or reloaded, and trains made up for further transportation over the Fitchburg Railroad and its connections, and the merchandise and cars consigned or directed to the Fitchburg & Worcester or Clinton line have been made up and delivered to said Clinton line. This labor of shifting merchandise and cars has been performed by the Fitchburg Railroad, over which road the greater part of the freight coming from the upper roads was transported to Boston or intermediate stations. No claim for compensation was ever made by the Fitchburg Railroad upon the Fitchburg & Worcester Railroad for thus shifting merchandise and cars; but since the completion of the Boston, Clinton & Fitchburg road and the opening of another and competing line between Fitchburg and Boston, a claim has been made for compensation for such labor upon all freight destined for Boston by this competing line, and upon no other. It appears also to have been the practice for the Vermont & Massachusetts and the Cheshire roads to load freight upon their roads, destined for the Fitchburg

and the Boston, Clinton & Fitchburg Railroads, indiscriminately, and to mix up in their trains cars destined for both roads, and to run them all into the yard of the Fitchburg Railroad, to be there assorted, reloaded and shifted as above stated.

A contract between the Fitchburg Railroad Company and the Vermont & Massachusetts Railroad Company was exhibited, which provides for the use of the Fitchburg track and appurtenances at Fitchburg by the Vermont & Massachusetts Railroad in making up trains in connection with the Fitchburg Railroad, and it appears to have been considered by the respondents that any labor performed by the Fitchburg Railroad upon cars and merchandise coming to their road from the Vermont & Massachusetts Railroad or the Cheshire Railroad, its tenant, was performed under that contract. The petitioners, however, denied that the contract was intended to cover or did cover the business coming to the Clinton line.

The commissioners do not deem it necessary to construe this contract or to take it into consideration. By section 114 of chapter 63 of the General Statutes, it is the duty of the Vermont & Massachusetts Railroad, and of the Cheshire Railroad, as its tenant, to deliver to the Boston, Clinton & Fitchburg Railroad, by its connecting track, all "merchandise consigned, ordered or directed to be sent" over said Boston, Clinton & Fitchburg Railroad; and by the same section the Fitchburg Railroad is forbidden to "receive and forward over *their* road any merchandise consigned, ordered or expressly directed to be forwarded over a different route." The objection is also reciprocal upon the Boston, Clinton & Fitchburg Railroad to deliver over its connecting track all "merchandise consigned, ordered or directed to be sent" over the Vermont & Massachusetts and Cheshire Railroads.

Whatever, therefore, may be the construction of the above-mentioned contract, as between the Fitchburg and the Vermont & Massachusetts Railroads, it cannot change the obligations of the Vermont & Massachusetts Railroad, or the Cheshire Railroad as its tenant, under the law, to deliver freight consigned to the Boston, Clinton & Fitchburg Railroad as a connecting road; nor can it give to the Fitchburg Railroad any claim against the Boston, Clinton & Fitchburg Railroad for any service performed in relation to any merchandise consigned to the latter road from the Vermont & Massachusetts or Cheshire roads.

The board, therefore, find that the service undoubtedly performed by the Fitchburg Railroad Company in loading and unloading freight and making up trains destined for the Boston, Clinton &

Fitchburg Railroad, so far as it concerns merchandise consigned to said Boston, Clinton & Fitchburg Railroad, has been performed by said Fitchburg Railroad Company as agents and servants of the Vermont & Massachusetts and the Cheshire Railroad Companies, and that their claim for compensation, if any, for service so performed, is upon said companies, and not upon the Boston, Clinton & Fitchburg Railroad Company.

And for the future the board advise all the railroad companies above named to conform strictly to the provisions of section 114 of chapter 63 of the General Statutes, unless amicable arrangements can be made for the mutual use of each other's premises in the transfer of freight to connecting lines.

COMPLAINT OF THE SELECTMEN OF WAREHAM, *on petition of C. F. A. Weston and others, concerning rates of freight on cordwood on the Cape Cod Railroad.*

This matter was referred to Mr. Appleton, who met several of the petitioners and Mr. Winslow, superintendent of the Cape Cod Railroad, at Wareham, and heard the evidence which was offered. It appeared that in old times, before the building of the railroad, a great deal of wood was sent away by coasters from this section of the country for the supply of Newport, New York and other places. After the railroad was built, it furnished a better market for wood, and the coasters withdrew and went into other business. Of late years, the railroad company have used coal chiefly for fuel, and the demand for wood has fallen off. New York and other places in that direction are now supplied by coasters from Virginia cheaper than it can be done from the Cape section. The owners of wood, therefore, looking round for a possible market, concluded that Boston was the best place for them, but, on consulting the printed tariff of rates of transportation, thought it was too high to leave them any profit. These tariff rates, of course, are fixed for small quantities, and it is usual on all railroads to make deductions on such rates for large quantities. None of the petitioners had been to see Mr. Winslow, or communicated with him in any way, to ascertain whether he would make any deductions from the printed rates. After some discussion on the matter, Mr. Winslow named a price, \$3.50 per cord from Wareham and Agawam to Boston, for quantities of fifty cords and upwards, which the petitioners present expressed themselves satisfied with. No further action, therefore, was required from the board of railroad commissioners.

COMPLAINT OF THE SELECTMEN OF WAREHAM, *on the petition of C. F. A. Weston and others, relative to a dangerous crossing of the Cape Cod Railroad in that town.*

This matter was also referred to Mr. Appleton, who visited the crossing referred to, and heard the statements of the petitioners and the superintendent of the road. There is an unobstructed view of the railroad on both sides of the crossing for some distance, and it is not at all dangerous in the sense of being hidden or obscure. The crossing itself is on a bridge over the river, and as the bridge is placed obliquely to the parts of the road on each side of it, the track of the railroad becomes nearly parallel to the line of common travel for vehicles on the bridge. If the crossing had been left, as is common on road crossings, with a square recess between the plank and the rails, there would be danger of light vehicles twisting their wheels off in the cavity. But here unusual care has been taken to chamfer off the edges of the plank, so that in this respect the crossing resembles the track of a horse-railroad, and is no more dangerous than such tracks are in the streets of a city. But in consequence of the oblique position of the bridge to the other parts of the road, the track of the common travel comes very near the corner of the bridge railing, and there is a possibility of accidents there in a dark night. This, however, does not appear to be caused by the construction of the railroad, but is a consequence of the location of the town road itself. Moreover, it is claimed by the railroad company that this crossing was accepted by the county commissioners when the railroad was first built as sufficient and proper, and that no complaints have been made of it before. Mr. Appleton suggested to the parties that the road might be much improved by widening the eastern causeway leading to the bridge on the northern side of it, and widening the bridge to meet it so as to render the crossing more direct, and remove the projecting angle of the bridge railing; and Mr. Appleton proposed, as a fair and equitable division of the cost of the improvement, that the town should widen the causeway, and the railroad company should widen the bridge. Mr. Winslow, for the railroad company, agreed to do so. The selectmen reserved the matter for consideration.

Another crossing in the neighborhood was also brought to Mr. Appleton's notice, viz., that of branch tracks leading to Tobey's Wharf, crossing the same town road near the end of another bridge. As the bridge is three or four feet higher than the tracks, and the descent is made in twenty feet or less, the pitch is quite abrupt and the crossing rather inconvenient. As the road on the other side of

the crossing rises also, Mr. Appleton suggested that the tracks should be raised one or two feet. The railroad company are willing to do this if consented to by all interested. This, however, would make it necessary to raise the tracks on the wharf also, and perhaps the wharf owner may object to this. How far the legal rights of the wharf owner give him power in the premises, Mr. Appleton is not aware; these branch tracks were authorized in the original charter of the railroad company. Should there be any difficulty in making the change suggested, Mr. Appleton also pointed out another way in which the crossing might be improved, viz., by dropping the cap on the first bend of piles in the bridge about one foot, and thus make the descent more gradual. The expense of this alteration would be small, and it would belong to the town to make the change. If the tracks are raised, the expense would be more, but the railroad company are willing to do it as far as and including the road crossing. No further action in this case appears to be necessary on the part of the railroad commissioners. Mr. Appleton will suggest, however, that under chapter 63 of the General Statutes, a greater power over railroad crossings is vested in the county commissioners than has been entrusted to this board, and that if any parties remain dissatisfied with the existing state of things in regard to these crossings, their proper course is to apply to the county commissioners.

COMPLAINT OF THE SELECTMEN OF FREETOWN, *on the petition of Paul M. Burns and others, concerning rates of freight on cord-wood on the New Bedford & Taunton Railroad.*

This was a complaint of the selectmen of Freetown in the county of Barnstable, on the petition of certain citizens of that town, in regard to alleged excessive charges of the New Bedford & Taunton Railroad Company for the transportation of cord-wood. A hearing before the full board was had in relation to the matter at the station in East Freetown, and in New Bedford, on the 2d day of August; numerous witnesses were examined and counsel heard in behalf of both parties. The following are the essential facts in the case:—

The New Bedford & Taunton Railroad Company, from the time it first went into operation in 1840 down to the year 1853, had been in the custom of charging a certain amount per mile for the carriage of wood by the cord on their cars, but the minimum amount charged for any distance of carriage was 75 cents per cord.

About the year 1853 this minimum charge was increased, and further increases were from time to time made until it reached \$1.50, at which figure it now stands. This charge, the petitioners alleged, was excessive, out of proportion to the charges made for the carriage of other and similar articles of merchandise, and intended by the company to discourage the sale of the wood on the line of their road. Other petitions of a similar nature had also been received by this board from the inhabitants of the same district of country, all practically based on the same belief, that the railroads, being themselves necessarily large consumers of wood, sought, by means of excessive charges on the transportation of the commodity, to secure a practical monopoly of all of it grown in the districts through which they passed.

In order to justify any action on the part of this board, it was necessary for the petitioners to prove at least one of three propositions:

1. That the charges of the New Bedford & Taunton Railroad Company for the transportation of cord-wood were excessive, as compared with those of other companies; or

2. That they were excessive as compared with the charges for other commodities of like bulk and weight as transported by themselves; or

3. That the New Bedford & Taunton Railroad could, for exceptional reasons, transport, with a fair profit to themselves, cord-wood at unusually low freights.

A comparison of printed tariffs shows that the following freights are exacted on a number of the roads of this Commonwealth for the carriage of this article:—

	Per Cord, Ten Miles.	Minimum Charge.
Boston & Providence,	\$1 25	\$1 25
Old Colony & Newport,	1 75	1 75
Boston & Lowell,	1 25	80
Eastern (dry hard),	1 75 }	1 00
“ (dry soft),	1 25 }	
Boston & Maine,	1 50	1 50
Fitchburg (hard),	2 25	1 75
“ (soft),	1 75	1 40
Cape Cod,	1 50	1 50
Average,	\$1 58	\$1 37

The Boston, Hartford & Erie, Connecticut River and Vermont & Massachusetts Railroads transport wood by special contract in all cases.

On a comparison of these figures it would appear that the charge complained of is \$1.50 as against \$1.37, the average charge on six other roads ;—the commissioners are of opinion, therefore, that the petitioners have failed to establish any practice of excessive charges against the corporation respondent as compared with other roads of this Commonwealth.

As regards the freight charged by this company for the transportation of wood, as compared with that charged for the transportation of other articles of similar bulk and weight, the following figures are drawn from the tariff of the road. In order to reduce articles to an equality, the cord of wood is estimated at the average weight of dry hard fire-wood, as established by evidence in this case, being 4,000 lbs. to the cord :—

ARTICLES.	PER TON.			
	From Taunton to New Bedford, 20 miles.	From Myrick's to New Bedford, 14 miles.	East Freetown to New Bedford, 10 miles.	East Freetown to New Bedford on basis of rate from Taunton.
Wood (4,000 lbs. per cord),	\$0 75	\$0 75	\$0 75	\$0 75
Fence posts (per ton),	1 40	1 20	80	70
Lumber,	1 40	1 20	80	70
Ship timber,	1 40	1 20	80	70
Shooks,	1 40	1 20	80	70
Bricks, stone, iron, . . .	1 40	1 20	80	70
Hay,	1 40	1 20	80	70
Potatoes,	1 40	1 20	80	70
Average (exclusive of wood),	\$1 40	\$1 20	\$0 80	\$0 70

The average charge deduced from this table would seem to be eighty cents per ton for the distance of ten miles, that being the distance between East Freetown and Taunton or New Bedford, the two points to which the complainants desire to transport their wood. From this comparison it does not appear that the petitioners have established the existence of any excessive charge for the transportation of wood as compared with the average of similar articles specified on the tariff of the company. Some evidence was offered tending to show that as compared with one or two articles, either not appearing on the tariff or subject to special rates, the charge is apparently heavy ; but the consideration shown as regards these articles was explained by the company on the ground of a desire, as in one case, that of ship-timber, to encourage an important and languishing interest at their terminal point ; or, as in the case of box-board logs, not published on the tariff, by a special contract with manufacturers for the carriage of large quantities at the convenience of the com-

pany. The officers of the road, at the same time, declared themselves ready to make similar contracts with any other persons on the same terms. The commissioners give but little weight to the reasons given for the first of these exceptions, and the last is based on a necessary rule of all roads which enables them to carry large quantities at rates for which they could not afford to carry single articles or small quantities. The commissioners, however, cannot make the exception, the rule. The comparison must be made with the average, not the lowest, freight charged. If the commissioners assumed the exception as the standard, they must, on petition therefor, recommend a reduction to that rate on all other articles specified in the tariff as well as cord-wood. As compared with the average, the charge complained of cannot be said to be excessive.

It remains to consider whether any exceptional reason exists why the New Bedford & Taunton Railroad Company should be able to transport fire-wood at unusually low rates and with a fair profit to themselves. In deciding this question the commissioners must bear in mind the right every railroad company has to a fair and reasonable profit for all services which it is called upon to perform. In this particular case, as in many others, it is very true that the paying that profit to the corporation may constitute a heavy and, perhaps, fatal burden to some essential local interest; this, however, is an argument which must be urged on the direction of the road, but cannot affect the decision of this board. As commissioners, we do not feel at liberty to recommend any company to forego its fair and reasonable profits and to do business at a loss, however much such a course on their part might recommend itself to our judgments as individuals. In this case, for instance, the petitioners represent almost the only local interest on the line of this road; they are poor, and seeking to extract a living from a very penurious soil; this concession they believe would be to them of great moment, while, whether they are right or not, it would at most constitute a small matter which would certainly not perceptibly affect in any way the receipts of the road; the yielding it by the company would tend to establish a feeling of good nature and friendliness on the line of the road, while insisting upon it keeps alive a sentiment of strong irritation. These considerations, however, cannot affect the present decision. This board cannot decide that a charge, not materially in excess of the average charge on similar articles, is unreasonable, unless, as already stated, it is prepared to go on, and, when petitioned, to remodel the whole tariff of this and all other roads, on the basis thus laid down. Such a course is at present out of the question. The commissioners must, in every case not based on general complaints of extortion, assume that the average charge on similar services is reasonable, and hav-

ing ascertained that, assume it as the standard. Taking this as their rule of action the commissioners are of opinion that the petitioners failed to establish any exceptional reason why the corporation respondent could carry wood fuel at unusually low rates, saving to themselves a fair and reasonable profit.

While arriving, therefore, at the conclusion that nothing was proved by the petitioners which would justify any recommendation to the corporation respondent in this particular case, there is one point to which the board desires to call attention. As already stated other complaints to this board have been based on the popular impression that the corporations, with a view to their own necessities, desire to establish a species of monopoly of the wood fuel along the line of their roads. The commissioners, after a careful investigation, are unable to discover any solid ground for this impression. Few of the roads now burn wood fuel in their locomotives, and the amount so consumed is continually decreasing. The roads, however, still are, and must continue to be considerable buyers of wood. They require it both for kindling and warming purposes. One of the roads of the Commonwealth during the last year was a buyer of wood to the amount of \$305,743; and the New Bedford & Taunton Railroad Company itself bought nearly twice as many cords of wood (947) as it did tons of coal (543). On examining the tariffs of the several roads it will be found that cord-wood is always specially provided for. Unlike all other products of the forest it, and it alone, has almost invariably a minimum rate provided of \$1.25 to \$1.75 per cord. It is unnecessary to discuss the occasion of this exception. It may well be that, in earlier and cheaper days, the roads did desire to keep the fuel along their lines from the market, realizing that they must some day need it themselves, and established this especial tariff to protect it, and that in those days it was sufficient for that end. The exception, then established, may have been insensibly continued to this day. However this may be, no reason for the exception seems to exist now, and the fact is undeniable, that it is made the occasion of a very considerable jealousy and ill-feeling towards the corporations in many localities. The officials claim, and the commissioners are inclined to think, there is no good ground for this, but its existence they do not dispute. Under these circumstances, and while refraining from any special action in this case, the commissioners would strongly recommend to the New Bedford & Taunton Railroad Company, and to all other corporations making a similar special rule, a change in their tariffs, classifying cord-wood with other descriptions of products of the forest, such as fence-posts, sleepers, shooks, lumber, ship-timber, &c., and charging it at the same rate. The cord would then be estimated at 4,000 weight,

for dry hard-wood. This charge would remove all grounds of complaint, and would not, according to the evidence of the officials in this case, materially reduce receipts.

HEARING in the matter of the re-location of the Passenger Station and Freight Depots of the Providence & Worcester Railroad, in the town of Millbury.

The proceedings in this case were had under chapter 130 of the Acts of 1870, which authorized the Providence & Worcester Railroad Company "to re-locate its passenger station and freight depots in the town of Millbury, as the board of railroad commissioners shall recommend." Petitions, extensively signed by the residents and business men of Millbury, had on two occasions been forwarded to the board of direction of the Providence & Worcester Railroad, urging a change in location, and, in accordance with these, this board was requested by the directors to hear the evidence and arguments presented in the case, and to render a decision upon it. In compliance with this request, the 27th-28th September were fixed for a hearing, upon which days all the parties in interest appeared personally or by counsel, the premises were viewed, the evidence of the petitioners for, and of the remonstrance against, a removal was received and the case was argued.

The railroad corporation was represented at the hearing by a committee of its directors, but was not a party to the discussion. The object it had in view was simply the accommodation of the public, and the committee desired only to inform itself as to what was the general desire, and what arrangements on the part of the road were best calculated to meet the general wants.

The following are the essential facts of the case as they were put in evidence. The present station was located and the buildings erected at the time the road was built, about the year 1845. The inhabitants of the town were then consulted in regard to location, and their expressed wishes were complied with. Since that time the industry of the town has greatly developed, the water privileges have been improved, and the centre of population has changed, no less than the requirements of business. It was, on all sides, conceded that the present buildings are insufficient, and that new ones must soon be constructed. The remonstrants against any change of location insisted that, by opening a certain new road, the present site would be made the most accessible to the centres both of trade and of population in the vicinity. The petitioners argued that another site, a short distance off, but on a different road, was

more accessible, and was favored by a large preponderance of popular feeling.

Were the question one simply of originally locating a station, the commissioners would have had no difficulty in arriving at a conclusion. The site designated by the petitioners is unquestionably the one best adapted to station purposes. The present buildings are placed upon a grade, on a sharp, reversed curve, and are crowded in between converging thoroughfares, the Blackstone River and a ledge of rocks;—the site is both inconvenient and dangerous, and to satisfactorily improve it, would be both difficult and expensive. Indeed, great doubts must be entertained whether it admits of any enlargement sufficient to accommodate the natural increase of business through any considerable period of years. On the other hand the site favored by the petitioners is well adapted to depot purposes, and, though directly at the commencement of a curve on its south side, is on a level road. As regards the relative natural advantages of the two sites for the purposes in view, the commissioners can, therefore, entertain no doubts.

This, however, is not a case of original location. It involves other and very grave considerations. The railroad station is necessarily the central point in a town like Millbury. Almost every house, every mill and every workshop is, to a certain extent, dependent upon it; they have acquired more or less of value from, if indeed they have not been purposely constructed with a view to, their proximity to the railroad depot. These arrangements for business or residence are by no means to be disregarded. In the very careful consideration the commissioners gave to this case, therefore, they fully adopted the principle laid down by the counsel for the remonstrants, that, to justify any removal a very decided preponderance of public convenience and popular desire should be manifested. Established arrangements on the strength of which investments have been made and industrial enterprises built up, are not to be disturbed for light cause. A slight balance of advantages, or desire, in such cases is not sufficient; a heavy burden of proof rests upon the innovators.

The statistics put into the case by the petitioners for a change were certainly entitled to great weight. The project of a removal had received the written approval of 298 out of the 503 voters resident in the town. These petitioners represented \$15,241 out of \$23,720, the total tax paid in the town. As regards the use made of the railroad, those signing the petitions paid, it appeared, for freights received \$2,937, and the remonstrants \$2,814; and for outward freights the petitioners paid \$1,835, and the remonstrants \$1,475.

As regards tonnage, the petitioners, it appeared, received 1,648 tons and the remonstrants 768 tons, not including coal. The outward relative tonnage was not put in evidence except as regards freights paid.

As regards distance, it was in evidence that such of the petitioners as lived west of the railroad now had to travel at least 110 rods further to reach the present depot of the Providence & Worcester Railroad than they would have to travel to reach a depot on the site proposed. Petitioners living east of the railroad would not be materially affected by the change. Of the remonstrants, those living in the neighborhood of the Cardis Mills, so called, would have to go about 30 rods further than they now do to reach the proposed site, and those living near the Simpson Mills, so called, about 100 rods further. But the remonstrants have in their immediate neighborhood the depot of the branch of the Albany road, which is 100 rods nearer to the Cardis Mills and 25 rods nearer the Simpson Mills than the present Providence & Worcester depot, while it is nearly half a mile further from the petitioners on the west side of the railroad than the location they ask for.

These various facts would certainly seem to indicate a very considerable preponderance, both as regards public convenience and the popular desire, in favor of the change requested by the petitioners. The remonstrants, on the other hand, introduced evidence tending to show that the undeveloped water-power of the locality was in that part of the town represented by them, and that nearly one-half of the freight forwarded to the road came from the mills owned and operated by them.

Under these circumstances the commissioners are called upon to decide whether a preponderance of evidence is established of a nature so overwhelming as to warrant the recommendation by them of a change of location. In case of any doubt existing in this respect, the remonstrants would, of course, be entitled to the benefit of it. One remaining consideration, however, obviated the necessity of weighing the evidence on this point, and was conclusive in the minds of the commissioners. The whole case of the remonstrants depended upon the construction of a new thoroughfare between the present depot site and the more recently developed portion of the town, known as Bramanville. It is unnecessary for the commissioners to consider either the feasibility of this road or the cost of constructing it. Upon both of these points different views were expressed. Two things, however, are clear: 1st, that, unless this road is constructed, the advantages of location, both for passengers and freight, are overwhelmingly in favor of the proposed new location; and, 2d, that the construction of this road is a con-

tingency over which the railroad commissioners have no control. The road may or may not be built; if it is built, it may or may not be available for heavy teaming. In any case it does not now exist, and the commissioners are not disposed to disregard the fact of an overwhelming present necessity because of a contingent future remedy. It appeared that this road had long been a subject of controversy in the town; that several times the constructing of it had been discussed in town meeting and uniformly voted down. The remonstrants alleged that this had been done solely by those dissatisfied with the present depot site; in fact, by the petitioners, and with no reason but to prevent a settlement of the depot question and to secure a removal. This, again, may or may not be the case. It is not for this commission to go behind the reiterated record of a town meeting, and to discuss the motives of a majority. The record was in evidence, and from it, it was apparent that the thoroughfare, the necessity of which to the present depot site the remonstrants concede, is not viewed with favor by a majority of the voters in the town. Even allowing the force of the explanation of this action of the town meeting given by the remonstrants, the adverse decision still remains a very significant indication of the preponderance of popular feeling. The commissioners, however, cannot excuse themselves in ignoring overwhelming considerations in favor of something over which they have control, because of the possible happening of something else over which they have no control.

They feel additional confidence in arriving at this conclusion from the peculiar character of the chief interests likely to be unfavorably affected by this removal. With few exceptions these were of a manufacturing character, and the change was deprecated on account of the increased distance of teaming involved in it. The Providence & Worcester Railroad has, however, always pursued a liberal policy as regards local freight delivery. The company intimated a willingness at the hearing to preserve the present location for freighting purposes, even after a removal, and it has never evinced any unwillingness to construct private turnouts and dumping places wherever a reasonable demand for such was proved to exist. Under these circumstances the remonstrants did not seem in great danger of the inconveniences they peculiarly apprehended.

For the reasons stated, the commissioners would recommend the Providence & Worcester Railroad Company to re-locate the station in question in general accordance with the desires of the petitioners. Should any further, or more detailed expression of opinion in the premises by this board be desired, it will be furnished on application therefor by the corporation interested.

Tabular Abstract of Accidents on Horse Railroads reported to the Railroad Commissioners, from December 1, 1869, to September 30, 1870.

RAILROADS.	Whole No. injured.	Passengers.	Others.	Children.	Adults.	Fatal.	Not Fatal.	PASSENGERS.				OTHERS.	
								Getting on or off cars in motion.	Getting on or off front platform.	Fatal.	Not Fatal.	Fatal.	Not Fatal.
Metropolitan,	7	6	1*	-	7	5†	2	6	3	5	1	-	1
Lynn and Boston,	1	1	-	-	1	1	-	1	1	1	-	-	-
Salem Street,	1	1	-	-	1	-	1	1	-	-	1	-	-
Stoneham Street,	1	1	-	1	-	1	-	1	1	1	-	-	-
Union,	2	2	-	-	2	-	2	2	1	-	2	-	-
Totals,	12	11	1	1	11	7	5	11	6	7	4	-	1

* Employé.

† Including one uncertain cause of death.

NOTE.—A comparison with the Annual Reports shows that the Metropolitan, the Lynn and Boston, the Salem, the Lowell, and the South Boston Railways, have not reported to this board all the accidents at the time they occurred; the last two roads making no reports whatever.

[L.]

Commonwealth of Massachusetts.

In the Year One Thousand Eight Hundred and Seventy-One.

A N A C T

TO REGULATE THE TRANSPORTATION OF NITRO-GLYCERINE AND OTHER
EXPLOSIVE SUBSTANCES.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows :

SECTION 1. Whoever knowingly delivers or causes to be delivered to any person or corporation, being a common carrier of passengers, for transportation in or upon any steamboat or other vessel, railroad car, carriage or other vehicle used for the transportation of passengers within this Commonwealth, or places or causes to be placed in or upon any steamboat or other vessel, railroad car, carriage or other vehicle so used for the transportation of passengers, any of the substances or articles known as nitro-glycerine or gly-noin oil, nitro-leum or blasting oil, or nitrated oil, or powder mixed with any such oil, or fibre saturated therewith, or dualin, shall be liable to a fine of not less than five hundred nor more than five thousand dollars; and any person or corporation, being a common carrier of passengers, who shall knowingly receive for transportation, or shall transport any of said articles in or upon any steamboat or other vessel, railroad car, carriage or other vehicle used for the transportation of passengers, or in any railroad car attached to any train used for the transportation of passengers, within this Commonwealth, shall be liable to a fine of not less than five hundred nor more than five thousand dollars.

SECTION 2. In case the death of any person shall be caused by the explosion of any of said articles while the same is being placed in or upon any such steamboat or other vessel, railroad car, carriage or other vehicle used for the transportation of passengers, or while the same is being transported thereon or is being removed therefrom, every person who knowingly placed or aided in or permitted the

placing of said article in or upon such vessel or vehicle for transportation shall be deemed guilty of manslaughter, and on conviction thereof shall be punished by imprisonment in the state prison not exceeding five years or by fine not exceeding one thousand dollars and imprisonment in the jail not exceeding one year.

SECTION 3. None of the articles named in the first section of this act shall be transported in any quantity in or upon any vessel or vehicle whatever within this Commonwealth unless the same shall be securely enclosed or packed in a metallic vessel surrounded by plaster of paris or other material that will be non-explosive when saturated with such article, and the outside of the package containing the same shall be marked, printed or labelled in a conspicuous manner "NITRO-GLYCERINE, DANGEROUS;" and whoever shall violate the provisions of this section shall be liable to a fine of not less than five hundred, nor more than five thousand dollars.

[Laws of U. S., 3d July, 1866; 14 U. S. Statutes at Large, 81.]

[M.]

EXPENSES OF OFFICE OF BOARD OF RAILROAD COMMISSIONERS
FOR THE YEAR ENDING DECEMBER 31, 1870.

Rent of office,	\$550 00
Carpet, furniture and fixtures,	569 79
Printing and advertising,	348 05
Books, maps, periodicals and binding,	93 10
Postage and express,	83 72
Stationery,	36 30
Care of office, messenger and labor,	78 70
Fuel,	39 00
Sundry incidentals,	30 25
	<hr/>
	\$1,828 91

Received of railroad corporations for printing their
annual reports, and paid into the treasury of the
Commonwealth, \$1,300 00

4678-81

